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EDUCATIONAL TELEVISION AND
ELEMENTARY EDUCATION

A Thesis
Presented to
the Faculty of Graduate Studies
University of Alberta

In Partial Fulfillment
of the Requirements for the Degree
Master of Education

by
James Terrence McBurney
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FACULTY OF GRADUATE STUDIES

The undersigned hereby certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "Educational Television and Elementary Education," submitted by James Terrence McBurney, in partial fulfilment of the requirements for the degree of Master of Education.

ABSTRACT

This study was undertaken to identify three primary considerations: cogent factors in the nature of television in terms of its suitability for instructional purposes in the elementary school, trends in the use of television at the elementary school level, and problems arising from the use of television in elementary education.

To meet the above objectives, a bibliographical analysis of the professional literature was undertaken with major emphasis placed upon a descriptive-interpretive treatment of the topic. This approach produced a series of implications for both administrative and instructional concern.

Consideration of educational television and elementary education was carried out from three basic viewpoints--theory, application, and evaluation. In the area of theory there was an examination of the nature of television, and television and the learning process. Application topics included using television in education, advantages and disadvantages of television in education, and discussion of non-experimental projects. The results of experimental projects, research in educational television, and reactions toward the medium's use in education comprised the evaluation phase of the study.

The exact nature of television and its functioning within the specific setting of elementary education was unclear. There appeared to be a lack of awareness over the actual contribution which the medium could make. A universally-satisfactory concept of the learning process was not evident, if, indeed, such a concept does exist. However, a lack of clarity in this area may have accounted for much of the ambiguity surrounding television's optimum role as an instructional medium.

Examination of the utilization of television in elementary education produced a large number of allegations which were proffered to justify present use and promote expanded future use of the medium. The over-zealousness of many educational television exponents frequently obscured effective application of the medium for specific purposes. Again a need for more clarity in the professional literature was evident in the writing which dealt with television's advantages and disadvantages. Confusion over the differences between characteristics of the medium and suggested advantages and disadvantages tended to weaken many of the arguments for more use of television in education. Although examination of actual non-experimental projects revealed a variety of successful applications, there was an urgent need for better reporting to encourage more

efficient use of the medium in elementary education.

Experimental projects, while frequent in number, did not provide a sufficient degree of depth or breadth to guide future users of educational television along the most favorable lines. Major weaknesses in a large number of experiments attached a stigma to the general field of educational television research. It was encouraging to observe a trend toward upgrading research through better planned and more rigorous investigation. The reaction of both teachers and students toward the medium indicated marked differences between various school levels. An unfortunate aspect of this topic was the infrequent publication of reactions toward the use of educational television and a decided lack of explanations for the reasons underlying the reported attitudes.

Future development of educational television must be carefully planned through an extension of current concepts of the learner, the process of learning, and television itself. Accurate assessment of what is and is not known in relation to the use of educational television in elementary education is imperative if the full value of the medium is to be realized.

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CHAPTER I

INTRODUCTION

"Television as a tool of education has had enthusiastic supporters and violent opponents; it has become a vital part of some school systems, and has been unequivocally rejected by others; it has been seen as a solution to many of our major problems of education, and as just another complication in an already complicated field."¹

I. PURPOSE OF THE STUDY

The purpose of this study is three-fold:

1. To identify cogent factors in the nature of television relative to its suitability for instructional purposes in the elementary school.
2. To identify trends in the use of educational television at the elementary school level as these are revealed by an examination of specific instances.
3. To identify the kinds of problems arising from utilization of the medium in elementary education.

It is proposed that an examination of selected references from the professional literature of education

¹Lester Ascheim, "A Survey of Informed Opinion," in Educational Television: The Next Ten Years (Stanford: The Institute for Communication Research, 1962), p.p. 17-8.

and educational broadcasting will reveal certain considerations which have implications for instructional and administrative concern in the elementary school.

II. SIGNIFICANCE OF THE STUDY

Once considered the panacea for all of education's problems, educational television is being subjected to a widespread questioning about its effectiveness. There is an increased awareness that the field does have problems. Tanner suggested that "it is clearly time we regard instructional television as more than a way of extending technologically our conventional teachers and their teaching practices. Instead, we need to determine the differences in learning experiences which the medium of television can effect beyond whatever is possible in the classroom setting. We also need to determine how television can best be utilized in harmony with the revolutionary advances currently underway in curriculum and instruction."² This study attempts to present an objective treatment of the past and present situation.

An abundance of material about educational television is found in the professional literature. However,

²Daniel Tanner, "Television and Learning," Teachers College Record, LXV (December, 1963), 247.

no effort has been made to analyze this mass of data in terms of its applicability to a specific school-level setting. This study endeavors to bring together the many strands of information written about educational television as they relate to the elementary school with its unique requirements and problems.

III. ORGANIZATION OF THE STUDY

The task of constructing an organizational plan for the study is complicated greatly by the wide range of varied subjects included in the realm of educational television. Eight major topics were finally selected in the belief that they would create as complete and relevant a presentation as possible within the scope and limitations of the study.

Content

Initial consideration is given to the medium of television itself--its nature and its functioning in the educational process. Television's suitability for enhancing learning activity is next examined in terms of past, present, and future uses of the medium in education. Appraisal in this context of utilization produces a number of advantages and disadvantages attributable to the medium. An attempt is then made to determine television's

role in a number of practical applications. Both non-experimental and experimental situations are considered. The topic of research arises naturally in descriptions of experimental undertakings and becomes the basis of another chapter. Finally the nature of reactions of students and teachers toward the medium appears to be a necessary factor for any project attempting to evolve some assessment of television's potential worth to a specific school setting. In essence, a three-stage examination is being made of the over-all topic. Educational television in elementary education is approached from the stand-points of theory, application, and evaluation.

EDUCATIONAL TELEVISION AND ELEMENTARY EDUCATION

THEORY	APPLICATION	EVALUATION
1. The Nature of Television.	1. Using Television in Education.	1. Experimental Projects.
2. Television and the Learning Process.	2. Advantages and Disadvantages of Television in Education.	2. Research in Educational Television.
	3. Non-experimental Projects.	3. Reactions Toward Educational Television.

FIGURE 1.

Within each topic, there is a synthesis of selected information to indicate what has been written in that area. Following the synthesis presentation of data, a

number of implications are suggested for instructional and administrative consideration at the elementary school level. Implications for instruction and administration are not included in Chapters II and III because factors arising from the nature of television and its role in the educational process will again appear when later facets of the medium and its utilization are considered.

Procedure

A bibliographical analysis of books and articles was used to carry out this study with emphasis placed upon a descriptive-interpretive approach to the topic. Hundreds of articles and sections of books were examined in an effort to locate information of particular significance to the elementary school. Because some degree of selectivity was required, the literature search attempted to look expressly for references which seemed to deal with educational television in elementary education. Other references, bearing more general titles, were also consulted due both to the frequent dearth of material mentioning specifically the elementary school and their possible applicability to one of the topics being covered in the study. Examination of the material in the references involved subjective selection and analysis of data considered pertinent to the purpose of the study.

References were selected from an exhaustive examination of the library resources of the University of Alberta and the Alberta Department of Education, Audio-Visual Services.

IV. DEFINITION OF TERMS

The professional literature of educational television contains a considerable amount of technical terminology. This study attempts to eliminate possible barriers to effective communication by using a limited number of technical terms. However, there is necessity for adoption of some language from the television field. These terms, as well as those with special meaning for this study, are included in the following definitions:

1. Classroom teacher--the teacher who carries out his instruction in the actual classroom setting.
2. Closed-Circuit Telecasting--a procedure by which television signals are distributed from the origination point to the reception points by means of coaxial cable.
3. Educational Television--all types of educational activity which make some use of television are encompassed by this term. The approach taken in this study is to use educational television and instructional television as synonymous terms to refer essentially to

instruction prepared specifically for distribution to classrooms by television. The lack of agreement over the meaning of these terms and the frequent lack of knowledge of a specific writer's intent when using these terms suggests that universally-acceptable definitions cannot be established.

4. Elementary School--any public or private institution designed to provide education for children in grades one to six, in terms of conventional grade-structure, is an elementary school.
5. Instructional Process--this is the activity of instructing or teaching children within a formal school setting. A synonomous term used in the study is "instructional activity."
6. Learning Process--the psychological and physiological processes involved in the act of learning by an individual are the essence of this term. "Educational process" and "process of education" are synonomous terms used in the study.
7. Medium--this term is used to refer to television, per se.
8. Open-Circuit Telecasting--a procedure by which television signals are transmitted from the origination point to the reception points by means of standard

broadcast transmitters and channels.

9. Telelesson--an actual lesson presented over television.
10. Televised Instruction--any instructional activity presented over a televised system.
11. Television Teacher--the teacher who carries out his instruction over television. Due to the fact that the lesson presentation is made in some type of television studio, this teacher is also referred to as the studio teacher.

V. LIMITATIONS OF THE STUDY

The study is selective. The vast amount of published material relevant to the topic precluded comprehensive coverage of all the literature. No attempt is made to examine the many reports of actual projects which have been printed by several school systems. Also no effort is made to procure the papers and reports of proceedings of the many conferences organized to study various facets of educational television.

Material examined for the study is limited to that contained in available professional books and periodical literature published up to the end of April, 1964.

The scope of the study is restricted to primary consideration of in-school instructional television at the elementary school level. The lack of material on this

particular facet of educational television necessitates occasionally going beyond this principal focus. The study is based upon the assumption that the professional literature would reveal many significant features of educational television in elementary education as one topic. There is no intention to look separately at the field of educational television and the field of elementary education and then draw these two areas together.

While critical evaluation of the general field of research is done, there is no individual assessment of each of the studies cited in the chapters on research. The breadth of the study is too great to enable a careful analysis and appraisal of each investigation.

Comparatively little data are available on the use of educational television outside the United States, therefore the study is limited primarily to activities in that country. Canadian data are included at points where this information represents significant differences from the American experience. For these reasons very brief reference is also made to the use of educational television in the United Kingdom.

The element of subjectivity cannot be eliminated completely from this study. The writer's experience in commercial television predisposes him to be somewhat favorable toward the medium. As a result of this predisposi-

tion, perhaps an overly strong attempt is made to avoid showing any feeling of preference for the medium.

Although all of the foregoing statements in this section have been designated as "limitations of the study," it is worthwhile noting that a number of them might also be interpreted as "delimitations" or expressions of the conceptual boundaries of the study rather than shortcomings. The specific scope of the study, that is the elementary school setting, the time period from which references were selected, and the lack of evaluation of each research investigation are illustrative of this point.

CHAPTER II

THE NATURE OF TELEVISION

Consideration of any alleged educational innovation should begin with examination of the innovation itself before any attempt is made to assess its ultimate contribution to education. The depth of treatment accorded the nature of television was restricted by its limited relevance to the major perspective of the study, namely, an examination of educational television as it pertains to elementary education, and by the small amount of space accorded this topic in the professional literature.

Twenty-seven articles and seven sections of books were read in an effort to present as complete a picture as possible of the medium of television. Of this total, only three references mentioned the elementary school.

I. TOPICS TO BE COVERED

Most writers regarded television as a means for carrying a message, that is, as a medium of communication. This approach constituted an examination of the "whole" aspect of television. The "parts" of television were examined for discussion of the qualities or characteristics of the medium. A final major consideration was the problem arising from confusion over terminology and

uncertainty surrounding the classifications used for the various applications of television in education.

II. AN EXAMINATION OF TELEVISION BY THE "WHOLE" APPROACH

Descriptions of television as a carrier of the message generally fell into two categories: (1) analogies to commonplace transportation systems, such as railways, and (2) theoretical constructs derived from careful, comprehensive examinations of the literature by the theorists.

Analogies

Holmes looked at television as a carrier or functional transportation system. He regarded it as a means of electronic distribution used to carry something from one point to another.¹ Television made possible extension of the distance between the point of origin and the point of reception. In using the term electronic distribution his explanation also recognized one of television's unique features--instantaneous transportation from origination point to reception point. Both the extension of distance between the sender and receiver and the immediacy of message-transportation were due to the electronic nature

¹Presley D. Holmes, Jr., "On Understanding Television: Significant Differences," Audio-Visual Communication Review, X (July, 1962), 256.

of television transmission.

The railroad-track analogy also classed television as a communication vehicle. The importance of the "train" was stressed because the tracks were regarded as merely a means of getting from one point to another. Television was only a communication tool that provided a means of moving the message from here to there.²

Theoretical Constructs

As the result of a specific survey Barrow and Westley produced a theory of communication which they applied to television:

.....communication effectiveness depends upon coping with interferences which distract attention and interferences which mask messages. The communicator copes with the former by maximizing the relative potency of the message and with the latter by maximizing the relative comprehensibility of the message. Relative potency is the degree to which a message is capable of attracting and holding attention; relative comprehensibility is the degree to which a message is understandable to the receiver. These concepts are treated as inter-dependent; however, relative potency is understood to be a necessary condition for relative comprehensibility (some degree of attention is necessary to any degree of understanding) whereas relative comprehensibility is not assumed to be a necessary condition for relative potency.³

²Robert A. Miner, "Television's Role in Improving the Quality of Instruction," NASSP Bulletin, XLVI (May, 1962), 13.

³Lionel C. Barrow, Jr., and Bruce H. Westley, "Television Effects: A Summary of the Literature and Proposed General Theory," National Association of Educa-

The authors of this theory regarded television as an effective communicator because the inherent audio-visual character of the medium would maximize both the relative potency and relative comprehensibility of the message. In essence, this approach was really a more "sophisticated" version of ideas expressed much earlier by Dale.⁴

Another scholarly exposition of the nature of television was given by Carpenter who viewed it as both a multi-dimensional and general medium of communication. As an instrument or tool it could encode, transform, transmit, or re-transform and then present the encoded patterns of meaningful information. These processes were performed so that the information input had correspondence with the information output. Furthermore these processes increased the possibility that "the psycho-physical correspondence between the content and intentions of the communicator and the receptive and responsive behavior of the perceiver can be regulated."⁵ Essentially, Carpenter seemed to be

tional Broadcasters Research Fact Sheets, Series VI, No. 9.

⁴Edgar Dale, Audio-Visual Methods in Teaching (New York: The Dryden Press, 1946).

⁵C. R. Carpenter, "Approaches to Promising Areas of Research in the Field of Instructional Television," New Teaching Aids for the American Classroom, Office of Education United States Department of Health, Education, and Welfare (Washington: United States Government Printing Office, 1960), p. 74.

emphasizing that television could change and shape, in special ways, the structure of the information it carried. The correspondence of the input would come closer to a truer representation of reality.

III. AN EXAMINATION OF TELEVISION BY THE "PARTS" APPROACH

Throughout the literature there was a tendency to refer to characteristics of television and advantages and disadvantages of television as synonymous terms. Illustrative of the confusion between characteristics and alleged advantages were the following enthusiastic words taken from the report of one television institute: "As a means of mass communication it is magnificent. It has an immediacy and a flexibility that the cinema lacks. It is exciting and attention-compelling. Its educational possibilities are tremendous."⁶

Characteristics of the Medium

At this point in the study, characteristics or qualities of the medium were regarded as distinct from claimed advantages and disadvantages. Making the distinction posed a difficult task and resulted in a very small

⁶Educational Television Programs Institute, "The Use of Television in Education," Education Digest, XVIII (February, 1953), 15.

number of discrete qualities. Holmes referred to the two concepts of illusion of reality and immediacy. These ideas were closely related because, in combination, they accounted for the suggested belief that a television viewer felt what he saw and heard was happening immediately.⁷

Immediacy was given a more precise meaning by Morehead who used the term "pictorial immediacy." He also suggested the selective nature of television as one of its prime characteristics.⁸ The camera must select only a segment of all that is going on for each of its exposures at any single moment. Television, therefore, presented a picture, an immediate picture, of some event, but it was not a complete picture because it represented only that part of the total which the camera had selected for presentation.

Vandermeer saw television as current and simultaneously stimulating both eye and ear.⁹ These were obvious characteristics because television could transmit what was actually taking place now. Its combination of sight

⁷Holmes, op. cit., p. 256.

⁸H. Morehead, "Let's Point Those TV Camera Outward," Elementary School Journal, LIX (October, 1958), 18-9.

⁹A. W. Vandermeer, "From Textbook, to Movie, to Television," Elementary School Journal, XLVIII (January, 1948), 278.

and sound unquestionably stimulated both visual and aural senses.

The absorbing quality of television was believed to be a direct result of the nature of the medium.¹⁰ Conditions which promoted attention and absorption were found in its simultaneous audio-visual appeal and the focus it placed on movement within a small space.

Several important functional characteristics of television were suggested by Carpenter. The only limit on extending a source of information appeared to be the number of sets. As the number of sets increased, the range of the source of information was increased. Information from a variety of different sources might be collected by means of a network of connected origination points. Many other media such as films, magnetic tape, pictures, and sound recordings, could be used with television or channelled through television. "Television is capable of handling with fidelity a range of semantic levels and complex patterns of communicative signs, cues, and symbols."¹¹

Conflicting opinions were found in regard to the

¹⁰Education Centre Library, Television in the Classroom: Part III (Toronto: Board of Education for the City of Toronto, 1962), 20.

¹¹Carpenter, op. cit., p. 74.

relative contributions of the characteristics of the medium and the nature of the message carried by the medium. Some writers suggested that television was a neutral means of communication.¹² They argued that television, itself, would do nothing to educate, entertain, or inform. The effect of television was determined solely by the product it presented and the people who produced that product.

However, other writers claimed evidence existed which showed that the medium itself accounted for the major part of its total effect. Studies of television, used in monopolistic, commercial, and educational situations, have revealed that many of television's effects had been found in each of these instances regardless of message, content, method, or intended use.¹³

IV. TELEVISION--MASS MEDIUM OR MEDIUM OF COMMUNICATION?

Whether the approach was in terms of "the whole" or "the parts," most of the thoughtful treatments of television's nature and characteristics indicated clearly that it was a communication medium. Although powerful and effective as a conveyor of information, television was and

¹²Education Centre Library, op. cit., p. 14.

¹³Ibid., p.p. 16-7.

will always be an instrument for use. The questions of how and why it is used would not be answered by the nature of the medium, but by those who utilized it for educational purposes.

Television as a Mass Medium

This study did not purport to be a comprehensive taxonomy for all audio-visual communication media. Some of the literature revealed a dislike of the term "mass media" as it was commonly applied to television. No attempt was made here to resolve the dissatisfaction which some people attached to the term "mass media," but the fact that some disagreement existed over this concept was worth noting. Again the writing of Holmes presented a lucid treatment of this problem. He substituted the concept of mass circulation for mass medium in his consideration of television. Disagreement with the mass medium terminology arose because the viewers were not necessarily gathered together in groups of thousands in large viewing rooms, but were frequently watching in groups of two or three, or as single individuals. Television was a device for multiplication--it could be mass circulated to many individuals or it could operate on a one-to-one basis.¹⁴ Holmes may have

¹⁴Holmes, op. cit., p. 257.

had a case in challenging the concept of mass medium, but it appeared that the idea of mass circulation as he stated it could also be applied to certain other mass media--radio and films. It was not peculiar to television.

It has been previously suggested that the extent of the discussion devoted to the nature of television was limited by a lack of relevance to the place of educational television in an elementary school context. Another restrictive influence upon a detailed discussion of the nature of the medium has been exerted by the fact that the nature of television was separated from its functioning in the instructional process. The following chapter in this study presents additional insights into the nature of television by examining its role in the action of teaching and learning.

Television as a Communication Medium

Undoubtedly a large body of material has been written about the nature of television in literature dealing with the broad field of mass communication. The work of Klapper,¹⁵ Schramm,¹⁶ Shayon,¹⁷ and Siepmann¹⁸ supported

¹⁵Joseph T. Klapper, The Effects of Mass Communication (New York: The MacMillan Company, 1960), p.p. 1-302.

¹⁶Wilbur Schramm (ed.), The Impact of Educational Television (Urbana, Illinois: University of Illinois Press,

this statement. Few of the writers in the professional literature of education have indicated any concern over the essential qualities of television. Many of those writers who have examined television in terms of its implications for education have categorized it as simply a communication medium. Once this label had been assigned to television there was little offered in the way of explanation to support this designation.

The educational literature contained a few exceptions to the foregoing statements by publishing several pieces of work by such writers as McLuhan,¹⁷ Carpenter,²⁰ and Holmes.²¹ McLuhan and Carpenter have been more prolific in their writing than Holmes, but all three have made sincere attempts to probe into the nature of television

1960), p.p. 1-247.

¹⁷Robert L. Shayon, The Eighth Art (New York: Holt, Rinehart and Winston, 1962), p.p. 1-269.

¹⁸Charles A. Siepmann, TV and Our School Crisis (New York: Dodd, Mead and Company, 1958), p.p. 1-198.

¹⁹Education Centre Library, op. cit., p.p. 21-6.

²⁰Ibid., p.p. 29-33.

²¹Presley D. Holmes, Jr., "Television as an Instructional Medium," in Televised Instruction, Lee S. Dreyfus and Wallace M. Bradley (eds.) (Detroit: Mass Communications Centre, Wayne State University Press, 1962), p.p. 53-60.

and the reasons that account for this nature. McLuhan and Carpenter have exhibited concern with the over-all process of communication. Their discussions have been generally abstruse, but their efforts were indicative of the type of inquiry which more scholars should be making.

The Education Centre Library has quoted from a series of articles by McLuhan. Illustrative of his thinking were these statements:

Today radio, telegraph, and TV have no moving parts. The electronic age abandons mechanism for the movement of light and information only. Viewed in the crudest quantitative terms, the shift from mechanism to electronics presents the character of total revolution. It is inconceivable that school and society alike should not receive the full impact of this change.²²

Looked at more closely, the electronic mode of shaping situations reveals its bias towards field structure. But even "field," preferred by physicists, can mislead by suggesting a flat, single plane. But a multi-dimensional field is intended, an "everyway roundabout with intrusions from above and below." Thus, for example, "point-of-view," so inevitable in print culture is alien to electronic "field" and the affiliates of such "field."²³

In addition, material written by Carpenter was quoted in the Education Centre Library project and it bore a strong resemblance to the approach taken by McLuhan:

There's a pattern in these new media--not line, but knot; not lineality or causality or chronology, nothing that leads to a desired climax; but a Gordian knot

²²Education Centre Library, op. cit., p. 22.

²³Ibid., p. 23.

without antecedents or results, containing within itself carefully selected elements, juxtaposed, inseparably fused; a knot that can't be untied to give the long, thin cord of lineality.²⁴

Each medium, if its bias is properly exploited, reveals and communicates a unique aspect of reality, of truth. Each offers a different perspective, a way of seeing an otherwise hidden dimension of reality. It's not a question of one reality being true, the others distortions. One allows us to see from here, another from there, a third from still another perspective; taken together they give us a more complete whole, a greater truth.²⁵

It was not within the scope of this study to present a comprehensive analysis and evaluation of the various theories proffered to explain television as either a medium of communication or as a mass communication medium. However, the existence of disagreement in this aspect of the nature of television was important to note.

The special study project of Toronto's Education Centre Library did a thorough job of examining the literature dealing with the nature of television. They claimed that little in the professional literature dealt with the inherent power of television, particularly when this amount of literature was compared to the amount of opinion that was expressed on other lesser issues.²⁶ Their final report suggested that part of the reason for the obvious

²⁴Ibid., p. 29.

²⁵Ibid., p. 32.

²⁶Ibid., p. 8.

lack of writing about the nature of television could be attributed to the dichotomy which many writers in the field felt existed between education and communication.

V. CONCLUDING STATEMENT

A more restrained approach to the innate aspects of television was evidenced by those writers who examined the medium from a global or "whole" approach. Selection of specific qualities or characteristics tended to produce a zealous advocacy of total acceptance of television, an acceptance which, in fact, was based only upon one or two factors. Writers taking the "parts" approach have generally shown a lack of objective assessment of what television can and cannot do. Although the majority of writers who spoke from a more comprehensive viewpoint were also enthusiastic over television's educational potential, they were cautious to the point that some qualifications had been placed upon the impact of the medium.

The lack of distinction between essential qualities and alleged advantages has distorted the expected role of television in education. Additional complications resulted from the arguments over which was most important--the medium or the message. These debates have been and will continue to be fruitless because medium and message bear a highly dependent relationship. One without the other is

valueless. It would be unfair to imply that all the writing dealing with the nature of television was devoid of depth, but the confusion resultant from mixing of terms and peripheral argumentation has greatly reduced the usefulness of much of the professional literature as a source of possible guidelines for effective utilization.

There was in the literature a noticeable lack of any effort to relate the nature of television to the specific concerns of elementary education. None of the references suggested implications relative to the elementary school child, curriculum, or teaching methodology. It seemed reasonable to expect some degree of recognition from both the educational television and elementary school fields of the medium's express suitability for certain functions within this particular grade level.

CHAPTER III

TELEVISION AND THE LEARNING PROCESS

The varied conceptions of the educational process precluded one completely-acceptable group of words to define accurately the essential elements of the process. Lack of a single definition which identified adequately the integral components of teaching and learning suggested the need for a brief examination of some of the concepts which attempted to cover the activity variously known as teaching or learning or education. Careful consideration of television and its nature was carried out in the previous chapter. At this point it became necessary to proceed further by examining the activity to which television would be applied. A knowledge of what took place in the act of learning was vital if any means was to be used effectively to improve education.

This study examined only those concepts of the process of education which were found in the professional literature dealing with educational television. Thirty-five articles and ten sections of books have been covered for this topic. Three of the references specifically mentioned the elementary school.

I. TOPICS TO BE CONSIDERED

Two basic ideas emerged from the literature. Most of the references examined the educational process and then suggested ideas for television's applicability to the process. A second, though decidedly subordinate, theme indicated the need for a clearer concept of teaching and learning.

Discussions of television and the educational process could be categorized in several ways. A common approach divided the total process into various phases. Teaching and learning activity could, as well, be structured in the form of a communication system. The educational process was also examined in terms of the tasks it performed. Assessment based upon specific school levels and different types of learning was another category. Finally, the process itself could be examined through the results it produced. Each of the above categories was dealt with in more detail with major emphasis placed upon the conception of television's role as defined by the nature of each category.

II. THE LEARNING PROCESS

Components of Learning

The most common approach took the form of a

breakdown of the learning process into its component parts. A two-phase viewpoint was expressed by Stoddard, one of the more prolific writers in this area. He felt that learning consisted of two phases, one of which involved using the senses to gather the raw materials of learning. In the second phase these raw materials were converted into the finished product of knowledge. The names suggested for these two phases were perception and thinking.¹

He suggested that a good part of the perception phase might be handled best in large groups with the use of television. An effective first or presentation-step should stimulate the learner to a more concerted individual effort in the second step.² Once perception had taken place, the second phase could be accomplished through working in smaller groups. "Television may offer the schools the possibility of carrying on the perception phase of learning experience in as large groups as administratively feasible. This might release the resources needed to provide for a greater number of smaller groups

¹Alexander J. Stoddard, "Can TV Teaching Make a Difference?," National Education Association Journal, XLVI (October, 1957), 44.

²Alexander J. Stoddard, "Television as a Powerful Factor in Education," N.A.S.S.P. Bulletin, XLII (September, 1958), 34.

to carry on the reaction portion of the learning process."³

Cassirer moved just beyond the two-phase approach by suggesting that television in education should closely correspond to Whitehead's three stages of intellectual progress--romance, precision, and generalization. The stage of romance was the stage of first apprehension. The stage of precision was the stage of grammar, the grammar of language and the grammar of science. A return to romanticism with the added advantage of classified ideas and relevant technique characterized the stage of generalization.

Television functioned in the stage of romance by exploring the unknown for the young child. Direct teaching could be carried on by television in the stage of precision. In the stage of generalization television could enhance the traditional educational setting by enabling the subject-area master to convey in simple language the essentials of his knowledge.⁴

Eight components were identified in the teaching-learning cycle by Carpenter and Greenhill and applied to television: (1) organized units of information or content,

³Stoddard, op. cit., p. 44.

⁴Henry R. Cassirer, Television Teaching Today (France: UNESCO, 1960), p.p. 174-75.

(2) making the information available for television distribution, (3) presenting the organized information in one or several different modes, (4) perception of the instruction by those people who are expected to learn, (5) learner's reaction to the presented materials, (6) learning takes place, that is, a change in behavior is observed, (7) the learners or others make some assessment of the learning, and (8) reviews, practice repetitions, condensed summaries and other methods of reinforcement and reward are provided.

From this standpoint, television served as a mediator between the learner and the material to be learned. Selection and preparation of learning materials and choice of the communication medium were done before television was used. "The straight line mediation functions of television are: (1) the electronic sensing of the information (encoding), (2) the transmission or distribution of the information to within the sensory reaches of people, and (3) the representation of the information in such a way as to be within the visual and auditory sensory capacity and the conceptual abilities of the people who must perceive it in order to learn."⁵

⁵C. R. Carpenter and L. P. Greenhill, "Facilities for Instructional Television," Educational Television: The Next Ten Years (Stanford: the Institute for Communication Research, 1962), p. 288.

Learning as a Communication System

The process of learning has been regarded by several writers as a form of communication for which a communication-system model could be constructed. Miner took this approach and identified three principal component parts: (1) conveying information in a manner which was interesting enough to open the learner's mind and allow the facts to enter, (2) properly relating the new information to previously acquired facts and knowledge, and (3) motivating the learner to use the new knowledge in conjunction with previous knowledge to solve problem situations which involved both old and new facts.

In the first part there was essentially a one-way communication process. Television, also primarily a one-way communication process, could be used successfully in this phase. He did not see television as particularly strong in the second part, although there was the suggestion that the use of talk-back and view-back facilities could achieve some degree of the required interaction at this point. There was little which television could contribute positively to the third phase.⁶

⁶Robert A. Miner, "Television's Role in Improving the Quality of Instruction," N.A.S.S.P. Bulletin, XLVI (May, 1962), 15.

An analysis of the learning process has been made previously in this study by Carpenter in collaboration with Greenhill. Writing independently, Carpenter postulated a "system-analysis" approach to television's role in learning. He established a simplified communication model with three closely-related sub-systems--the teaching functions, the mediating functions, and the learning functions. Relatively homogenous functions were selected for the composition of these categories. Teaching functions would include collecting, organizing, and presenting information. Mediating functions would be served by certain mediating instruments such as television. Learning functions consisted of perceiving and reacting to instruction. "These sub-systems correspond somewhat to (a) the informational inputs, (b) the information-handling functions of media, and (c) the activities of learners or audiences."⁷

Television's role within this system was clearly that of a medium for carrying or presenting information. Little elaboration was given on the functioning of the information-handling media, thus it was assumed that their

⁷C. R. Carpenter, "Approaches to Promising Areas of Research in the Field of Instructional Television," New Teaching Aids for the American Classroom, Office of Education, United States Department of Health, Education, and Welfare (Washington: United States Government Printing Office, 1960), p. 76.

operation concerned itself primarily with effecting mediation between the teaching and learning functions as they were conceptualized in the model.

The Tasks of Education

A more pragmatic approach was taken by those writers who examined the learning process in terms of the tasks or jobs which had to be carried out. Bronson saw more in the teaching function than merely presenting information or making demonstrations. There must be planning for any act of presentation, students must be motivated to learn, student readiness for the subject must be assessed, opportunities for applying what has been learned must be created, evaluation must be carried out, adjustments for individual differences had to be made to ensure that the material was clearly understood.⁸

He suggested that television had limited application to the total learning process because it was a mechanical device. It could only accomplish those functions for which decisions were made far in advance and away from the immediate learning situation. Therefore, it was only in the presentation or demonstration stage that television

⁸Vernon Bronson, "The Potential of ETV," National Education Association Journal, XLVII (May, 1958), 335.

could be effectively applied.

The Applicability of Television to Learning

Several writers gave comprehensive statements of the process of learning, as they saw it, and then proceeded with claims that television could adequately carry out any and all of the teaching functions. Other writers seemingly removed previously-held reservations about what television could and could not do. For example, in the previous reference to Bronson, it was noted that he saw television as effective only in the presentation stage. Writing four years later, he reiterated an identical concept of the learning process and then stated, without any qualifications, that television could do all this and more!⁹

Specific Types and Levels of Learning

A limited assessment of television's role in education was made in relation to specific grade levels or types of learning. "The way in which television can function effectively as an ingredient of the educational process will vary from subject matter to subject matter and

⁹Vernon Bronson, "Frame and Focus," National Association of Educational Broadcasters Journal, XXI (March-April, 1962), 56.

at various levels of education."¹⁰ Stoddard wrote, "as a direct teaching tool television's value is probably greater when the learner is able to perceive and think on his own--a condition which signifies a certain progression or maturation in the educational process."¹¹ He felt this degree of maturation was present only at the secondary-school and post-secondary-school levels.

Holmes identified four types of learning: (1) cognitive structure (facts or information gain), (2) socialization, (3) motivation, and (4) psycho-motor skills. He noted a need for more answers to questions about which types of learning television could accomplish, but suggested that socialization was the only type of learning which television would not help.¹²

Results of Learning

Another approach to understanding the process of learning consisted of looking at the product or results of the process. Faust exemplified this approach by attempting

¹⁰Clarence H. Faust, "Educational Philosophy and Television," Educational Record, XXXIX (January, 1958), 50.

¹¹Stoddard, op. cit., p. 34.

¹²Presley D. Holmes, Jr., "Television as an Instructional Medium," Televised Instruction, Lee S. Dreyfus and Wallace M. Bradley (eds.) (Detroit: Mass Communications Centre, 1962), p. 54.

to determine the essence of education. He considered the essence to be the stimulation of profitable reflection in the student. Such stimulation resulted from the development of intelligence, powers of thought, capacity for reflection, and human reason and its products, wisdom and knowledge.¹³

Television's main contribution toward development of intellectually self-directed students was found in its ability to stimulate thought. Faust contended that the electronic, audio-visual character of television made it an ideal means for initially arousing the learner into a state of intellectual inquiry. More specifically, he suggested that television's role in the educational process was that of making available the best teachers in all subject fields. He felt that learners would be motivated sufficiently following their exposure to the "master teachers" viewed over television.

Another viewpoint of the essence of education, widely divergent from that of Faust, was raised by Holmes. He suggested that the basis of any educational process was the one-to-one relationship. He pointed out that we are moving farther away from this relationship and suggested that television might be better employed in education

¹³Faust, op. cit., p.p. 45-7/

through an individual rather than a large-group approach.¹⁴

III. A CLEARER CONCEPT OF THE LEARNING PROCESS

The need for a clearer concept of the process of learning was very obvious after consideration of the previous material in this chapter. A definite warning came from Dale who called for both a clearer definition of the responses television was supposed to evoke and a better conception of the total educational process.¹⁵

Kilbourn raised the issue in more specific terms by looking carefully at factors related to the quality of the learning experience for individuals. Conventional frameworks of teaching and learning were deemed inadequate. He criticized educationalists for a lack of precise programs which would properly evaluate the human elements in the learning process:

Neither MPATI programming nor conventional classroom practice seem to be supported by an adequate conception of the role of individual learners. We seldom recognize that individuals select from experiences they encounter just what they will learn. The equating of "what is presented" with "what is learned"

¹⁴Presley D. Holmes, Jr., "On Understanding Television: Significant Differences," Audio-Visual Communication Review, X (July, 1962), 257-58.

¹⁵Edgar Dale, "Implications for the Educator," Educational Research Bulletin, XXXVI (March, 1957), 114.

is not an assumption unique to educational television.¹⁶

The infrequency of statements such as the foregoing constituted a major weakness in the professional literature of educational television. Too many people moved too quickly in this field without carefully considering such necessary questions as what effects would television have upon present conceptions of the educational process? What modifications in the present conceptions were suggested by television? Was television being used as a substitute for the present level of classroom teaching or was it actually being used to improve classroom teaching?

IV. TELEVISION'S ROLE IN THE LEARNING PROCESS

Television's role in the process of learning has been postulated in many different ways. The approaches previously dealt with were only selective: they did not include all of the theories or projected uses attributed to educational television. It might even be stated that these views were not representative of those found in the literature for they had been selected because they were considered superior to most discussions of the topic. The small number of propositions referred to in this

¹⁶Robert W. Kilbourn, "Midwest Airborne Television and the Technology of Education," Audio-Visual Communication Review, IX (October, 1961), 202.

chapter was indicative of the limited concern expressed by most writers dealing with the topic of television in the educational process.

It would appear that television's role in the learning process is one of mediation between the learner and the material to be learned. An overly-simplified statement of the essence of learning would include two phases--perception of material by the learner and reaction to material by the learner. The bases of the instructional process seem to include organization of the material to be presented to the learner, presentation of the material to the learner, and reaction to the material by the learner. Within this framework television's task appears to involve enhancing the organization and presentation factors in the instructional process in order to further the learning process.

V. CONCLUDING STATEMENT

A completely negative comment on what has been written would not be fair. Some of the work has resulted from thoughtful, careful consideration of both television and the process of learning. The fact that some effort has been made to examine in depth what educational television could mean was worthy of commendation. Several good writers were continuing to probe for answers to the

prime question--what can television do to improve the act of learning?

Although some notable attempts were being made to ascertain the place of television in the total educational picture, there was a lack of pertinent published material relating to television's application in specific learning situations. It was in this area that worthwhile attempts were almost non-existent. An educator faced with problems peculiar to a particular grade-level would find few answers to his problems in the literature of educational television.

Writers in all sections of the professional literature have constantly proclaimed the need to improve education. This desire to bring about better teaching and learning has not been exclusive to the field of educational television. More than at any other time in the past, pressure to improve education was being exerted upon more people by more people for the benefit of more people. It seemed that the almost overwhelming rush to improve education left one vital question unanswered--what was to be improved? The general realization that nearly all phases of education should be bettered did not remove the necessity for clearly-defined, specific objectives. A lack of precise statements of purpose has been too evident throughout the literature on television in education. The optimum development of educational television has been

hindered by an absence of purposeful progress toward defined, attainable, and necessary goals.

A major problem facing television educators was the same problem confronting all educators, that is, what constituted the learning process? The problem was compounded when attempts were made to select the most essential components or to identify the essence of learning. Careful examination of the literature suggested that too many people were unaware of the problem or too few people were writing about it. This problem was very difficult to solve --no completely satisfactory answer existed. The immensity of the task, however, should not obviate continual striving for solutions. A lack of attention to the basic essentials in the educational process have created one more unfavorable influence upon the proficient application of television in education.

Another of education's basic areas, attention to individual differences, was accorded little recognition in the literature of educational television. Several reasons were possible explanations for this omission. Many writers lacked depth in their considerations of the process of education. Few attempts have been made to set out specific educational problems and show how television can contribute to the solution of these problems. Perhaps the mass communication or mass circulation idea has pervaded

the entire subject to such an extent that individuals were neglected. Preoccupation with the great numbers which television could reach might be one reason for the absence of literature dealing with the use of this medium at specific school levels.

Chapter II suggested an inadequate conception of the nature of television. This chapter clearly indicated an inadequate conception of the role television could play in the process of learning. Development of suitable concepts in the above areas was an awesome task. Many questions arose and most of these did not have immediate answers. Among the more important of these questions were the following: what are the relative educational contributions of the medium and the message it carries? How confining is the "mass medium" nature of television in terms of teaching individuals? Does the nature of the medium make it more suitable for one grade level than another? Why have educators devoted so little attention to the essential qualities of the medium? What relationships exist between the process of learning and the process of communication? What is involved in the learning process? How will television modify present conceptions of the educational process? What are the specific purposes of education and how can television contribute to their attainment?

The presence of these difficulties should not deter

a continuing inquiry into factors that would lead to a more efficacious use of television at the elementary as well as all other school levels.

CHAPTER IV

USING TELEVISION IN EDUCATION

Previous chapters have shown some of the salient features of television as a medium and as a potential contributor to improvement of the process of learning. These considerations have been restricted to discussions of how the medium might be applied in general to the educational process. In this chapter the emphasis shifts to examination of more specific roles for television. It presents a closer view of practical usage in terms of what was being done and what could be done. The foregoing two chapters have been primarily concerned with identifying significant features of both television and education as they were evidenced in the professional literature on educational television and elementary education. From this point, the medium and the process were examined together in an effort to determine how features of the former might fulfill some requirements of the latter.

Sixty-seven articles and twelve sections of books have been examined for this topic. The elementary school was specifically mentioned in twelve of the references.

I. TOPICS TO BE CONSIDERED

So widespread were the suggested uses for television

in education, it was difficult to establish discrete categories. Due to the multiplicity of potential roles, there was no attempt to group several uses into single classifications. Rather, the various functions were treated individually to establish clearly the unique features of each situation.

The topic of using television in education has been approached in two basic manners in the professional literature. One method consisted of a generalized approach which endeavored to cover briefly a wide variety of functions. The other approach identified commonly one or a few uses, then presented a more detailed consideration of each.

II. GENERAL USES OF TELEVISION IN EDUCATION

An important feature of the generalized approach was the scope of potential or actual uses which were listed. Consideration of the following selected listings illustrated clearly the previous point.

Potential Uses of Educational Television

A number of writers stressed future or potential contributions of television to education. Faust suggested three of these:

1. Raising the teaching profession's status by extending

the scope of the best teachers.

2. Helping to overcome the shortage of qualified teachers and reduce the impact of rapidly increasing numbers of students.
3. Providing a better communication of ideas that will lead to more effective development of intelligence.¹

In his projections for the future, Siepmann identified three services which television could render to education:

1. Conserve teacher energy.
2. Carry a better educational experience to remote areas.
3. Present a new language of communication in education--a language of the eye and of the ear.²

Actual Uses of Educational Television

As the use of television became more common in varied educational situations, writers began to express with more certainty what television could actually do--they were less inclined to couch their ideas in terms of what it might possibly do. This change in emphasis was reflected in the greater number of uses attributed to television. Some

¹Clarence H. Faust, "Educational Philosophy and Television," Educational Record, XXXIX (January, 1958), 51.

²Charles A. Siepmann, "Television in Education--Today and Tomorrow," Canadian Education and Research Digest I (September, 1961), 10.

writers continued to take a very general view of using television, but most of the others concentrated on either instructional or administrative functions.

Frazier and Wigren believed a variety of instructional functions could be served by television:

1. To bring community resources into the classroom.
2. To bring current news events, local and national, into the classroom.
3. To give the viewer a close-up inspection of various objects and processes.
4. To assist in the presentation of subjects teachers feel insecure in teaching.
5. To assist in stimulating creativity and developing attitudes.
6. To provide individualized instruction.³

A special survey of school superintendents' views on the uses of educational television was conducted by Crary. He found that these administrators were enthusiastic over television's application to curriculum enrichment and provision of special features (demonstrations by "experts" and speeches by authorities in particular

³Alexander Frazier and Harold E. Wigren (eds.), Opportunities for Learning: Guidelines for Television (Washington: Division of Audio-Visual Instructional Service, National Education Association of the United States, 1960), p.p. 52-4.

fields).⁴

Several sources in the literature selected a number of administrative areas in which educational television could be effectively utilized. In-service training continued to increase in its importance as a major concern in any good school system. Closed-circuit television, as one example, could put administrative and supervisory personnel into immediate, simultaneous contact with all school staffs in the system. Special lessons and demonstrations might be presented on either a live or recorded basis. Training films could be transmitted by television to large groups of people at several reception points. The foregoing suggestions were only a few of the great number of in-service uses for television described in the writing of Levenson,⁵ Richardson and Gerletti,⁶ and Frazier and Wigren.⁷

⁴Ryland W. Crary, "Superintendents' View of Television and its Educational Potential," National Association of Educational Broadcasters Research Fact Sheets, Series VII, No. 3.

⁵William B. Levenson, "Can TV Shorten the Teacher Shortage?," Nation's Schools, LIX (April, 1957), 71-2.

⁶Elinor Richardson and Robert C. Gerletti, "Television in the Classroom," California Journal of Elementary Education, XXXI (November, 1962), 109.

⁷Frazier and Wigren, op. cit., p.p. 52-4.

The vitally important role of public relations could be enhanced by the use of television. The public relations strengths of the medium were emphasized by Newsom⁸ and Richardson and Gerletti.⁹ School system administrators could "tell their story" to the public in several ways. Special programs to explain currently important issues might be arranged. Regular series of school programs for instructional purposes, when transmitted by open-circuit facilities, provided a direct look at certain subject areas. Demonstration lessons could also be a useful means of communicating what is taking place in the schools.

One administrative factor which did not receive widespread attention was the extent of co-operation among schools within a system and among school systems themselves. To effect economic use of many televised materials a substantial amount of sharing was necessary. If a co-ordinated plan was to be put into action there would have to be a high degree of close co-operation among many people in many different locations. Although television's influence here was indirect, it seemed reasonable to suggest that use of the medium could promote greater

⁸Newsom, op. cit., p.p. 141-44.

⁹Richardson and Gerletti, op. cit., p. 110.

co-operation among a variety of educational agencies including schools, school systems, universities, and provincial or state departments of education.¹⁰

The foregoing administrative factors were given only brief consideration at this point because they came up again when the literature which dealt with specific uses of educational television was examined. In-service training, public relations, and the promotion of co-operation were selected to represent the type of administrative function to which television has been applied.

Items identified up to this point have appeared in references dealing in a general way with the use of television in education. The inclusion of these general lists provided a kind of overview for consideration of the specific functions. Many of the instructional and administrative points already referred to will be discussed in greater detail.

III. SPECIFIC INSTRUCTIONAL USES OF TELEVISION IN EDUCATION

For purposes of clarity, the factors to be considered in the following pages were regarded primarily as either instructional or administrative. Topics categorized as instructional included enhancing specific facets of the

¹⁰Ibid., p. 110.

instructional process, extending the influence or multiplying the effectiveness of good teaching, bringing "the world" into the classroom, development of the individual, and the use of television for specific subjects at specific school levels.

Enhancing Specific Facets of the Instructional Process

Three facets in the instructional process have been identified in the literature selected for this particular topic: (1) motivation, (2) lesson presentation, and (3) influence upon special features of the learning process.

The great potential of television as a tool for motivation was readily acknowledged by Williams,¹¹ Aikens,¹² and Willis.¹³ These writers attributed Television's strength as a motivator to such inherent characteristics as audio-visual appeal, immediacy, and intimacy. It was suggested further that the excellent motivation provided by television should stimulate and challenge the student to assume more responsibility for his own

¹¹Allan S. Williams, "Television in Education: Possibilities and Obstacles," School Review, LXIV (April, 1956), 187.

¹²Harold H. Aikens, "Educational Television and the Curriculum," Ohio Schools, XL (March, 1962), 36.

¹³Benjamin C. Willis, "Schools and Educational Broadcasting," AERT Journal, XV (April, 1956), 7.

education.¹⁴

Enhancement of the lesson presentation as another use for television has been advocated by Thompson,¹⁵ Aikens,¹⁶ and the Education Centre Library report.¹⁷ Television's superior "observation" qualities made it invaluable in situations such as case-studies. Animated cartoon-type materials, another common television production technique, could be effective in clarifying mathematical and structural relationships.¹⁸ Presentation of facts and some applications of these factual data were given greater impact through the improved demonstrations and use of expert resource people, two of the alleged advantages of television in education.¹⁹ The selective nature of television should encourage students to concentrate their attention on a specific area.²⁰

¹⁴Aikens, op. cit., p. 7.

¹⁵Loring M. Thompson, "The Potential of Educational Television," Educational Record, XXXIX (April, 1958), 176-79.

¹⁶Aikens, op. cit., p. 7.

¹⁷Education Centre Library, Television in the Classroom: Part III (Toronto: Board of Education, 1962), p. 111.

¹⁸Thompson, op. cit., p. 176.

¹⁹Aikens, op. cit., p. 7.

²⁰Education Centre Library, op. cit., p. 111.

Reinforcement of previously-presented material through repeat telecasts was a possible function when the telelesson was recorded. This should provide considerable assistance in the steps of review or reteaching.²¹ The learner who has been plagued by reading disability could be helped by the visual and aural television presentation.²² Other features of television could be applied to special learning situations, but the previous two examples should be a suitable indication of the medium's potential in these special areas.

Extending the Influence of Good Teaching

Extending the influence or multiplying the effectiveness of good teaching and good teaching materials was a highly prevalent use for television according to the professional literature. Wider distribution, greater use of materials, and the presentation of authorities in specific areas constituted the main methods by which television could extend effective learning experiences.

Through television the influence of a good classroom

²¹Williams, op. cit., p. 187.

²²A. J. Foy Cross, "The Challenge of Television," School Executive, LXIX (April, 1950), 64.

teacher could be spread beyond a single classroom.²³ This extension could be brought about by exposing the teacher's lessons to numbers of students and teachers far exceeding the thirty to forty youngsters who would be found in a regular classroom setting. "It may be that television will come into the schools in such a manner as to multiply greatly the effectiveness of many teachers and increase the amount and quality of learning beyond anything heretofore attained."²⁴

Another means by which the favorable influence of good instruction might be extended was through greater utilization of valuable learning materials. Useful material such as a good science exhibit received limited circulation when its exposure was confined to one classroom or one school. In addition graphic materials such as films, slides, and display cards could be used on television. It was clearly evident that anything which could be "presented" could be presented over television.²⁵

²³Educational Policies Commission, "The Potential of ETV," National Education Association Journal, XLVII (May, 1958), 336.

²⁴Alexander J. Stoddard, "Television as a Powerful Factor in Education," N.A.S.S.P. Bulletin, XLII (September, 1958), 37.

²⁵Philip Lewis, Educational Television Guidebook (New York: McGraw-Hill Book Company, 1961), p. 7.

Local resource people as well as more widely-recognized experts or authorities might be mass-circulated by television. For example the visit of a noted writer to a community could be recorded and, if the recording were considered to be educational, this recording could be presented to all the schools in the community over television. In this way the single visit of an important resource person could be brought to all the students in the school system.^{26,27}

Bringing "the World" Into the Classroom

Somewhat related to the previous concept of multiplying the effectiveness of good teaching was the suggestion that television could bring the world into any classroom. The relationship between these ideas was seen in the use of important resource people, a type of learning experience which could be efficiently multiplied many times through the use of television. Not only could the influence of important resource people be extended, but there would be a wider distribution of procedures, experiences, and materials that might otherwise be unobtainable.²⁸

²⁶Education Centre Library, op. cit., p. 111.

²⁷Lewis, op. cit., p. 8.

²⁸Aikew, op. cit., p. 36.

A large number of educationally-useful items were mentioned by many writers for possible transmission by television. The Ford Foundation²⁹ and Fuller,³⁰ in two separate reports, suggested several ideas. Observation of current news events could mean being an eye-witness to history in the making. Certain physical and chemical processes which could not be duplicated anywhere other than in the most expensive laboratories could be exposed in close-up form over television. The cultural resources of institutions such as museums, art galleries, and libraries were ideal resources for transmission by television.

An additional advantage from using television to transmit resource people and learning materials was the medium's ability to present these resources immediately. The factor of time assumed increased important in the world of instantaneous mass communication and jet-speed travel. It was suggested long ago that television could be a powerful means for overcoming the time barrier.³¹

²⁹Ford Foundation, Teaching by Television, A Report from the Ford Foundation and the Fund for the Advancement of Education (New York: The Ford Foundation, 1961), p. 68.

³⁰Edgar Fuller, "Television is Ours if We Use It," School Executive, LXXI (August, 1952), 40.

³¹Paul B. Mowrey, "What About Television?," N.A.S.S.P. Bulletin, XXXI (February, 1947), 96.

Development of the Individual

Several writers indicated that a major role for television was that of increasing development of the individual. This role was difficult to support in concrete terms, but it did exist as a definite possibility. Two themes were followed in discussions of television as an aid to individual development: (1) showing the ways of man in society and (2) exposing what is good in our cultural heritage.

Morehead regarded television as instrumental in developing free individuals in a free society.³² Educational television should bring the real-life drama of everyday living into the classroom. In effect, television would reveal the ways of mankind. Promoting an understanding of democracy was suggested by Arms.³³ He felt increased understanding would result from showing various government groups at work. For example, proceedings of the local school board could be televised. This idea of government in action could be applied at municipal, provincial, and national levels. Exposing what is

³²Hubert Morehead, "Let's Point Those TV Cameras Outward," Elementary School Journal, LIX (October, 1958), 19.

³³George L. Arms, "Ed TV = Future," National Association of Educational Broadcasters Journal, XVIII (December, 1959), 17.

good in our cultural heritage would appear to be an obvious task for educational television. Through exposures to the best in the arts, students could be expected to develop aesthetic tastes and creativity.³⁴ Television could acquaint students with artists and their products and guide these students through meaningful learning experiences. The ability of television to transmit to the mass of society was cited as a means of promoting cultural advancement by bringing the cultural heritage to large numbers of people.³⁵

Television for Specific Subjects at Specific Grade Levels

A final factor in the "purely instructional" category was found in references dealing with the use of television in specific subject areas or at specific school levels. Most of the discussions of television which applied to particular subjects will be included in the chapter describing actual projects, therefore consideration at this point was limited to noting that nearly all writers felt that educational television could be utilized effectively in all subject areas.³⁶

³⁴Hubert Morehead, "Television and Learning," Educational Leadership, XIII (December, 1955), 168-69.

³⁵Lewis, op. cit., p. 8.

³⁶Donald G. Tarbet, "A TV Screen In Your Classroom,"

One of the few articles referring to possible uses of television at specific grade levels was written in 1947 by Stasheff.³⁷ He believed that television could be applied to three levels. At the elementary level it could take children beyond the classroom. At the junior high school level its main value would be supplementing the teaching of science and social studies. Uses at the senior high school level would include on-the-spot news coverage, discussion programs, and drama. The significance of having to go as far back as 1947 for suitable material dealing with the use of television at various grade levels will be dealt with later.

IV. SPECIFIC ADMINISTRATIVE CONSIDERATIONS

Topics classified as administrative in nature have been assigned to this category on the basis of their providing for a more effective learning situation. Those topics considered under the instructional category were felt to be involved directly in the actual teaching-learning activities of the classroom. Administrative factors examined in the upcoming pages include the challenge to

Clearing House, XXIX (October, 1954), 67-71.

³⁷Edward Stasheff, "Television for Tomorrow's Schools," Nation's Schools, XXXIX (June, 1947), 57-8.

educators, re-examination of traditional procedures and attitudes, equalization of educational opportunity, confrontation of the problems created by the student "population explosion," re-deployment of personnel and materials, design of school buildings, public relations, and in-service training.

Challenge to Educators

The challenges presented to educators tended to take the form of potential uses for the medium in areas of administrative concern. Willis suggested three challenges:

1. Television can be a powerful means for interpreting the school to the public.
2. Television challenges educators to find ways to integrate it into their basic teaching plans.
3. Television challenges administrators and schools of education to use it in the improvement of instruction.³⁸

Three areas of challenge were also suggested by Fleming:

1. The challenge presented to good teachers.
2. More effective use of manpower to handle greater student numbers.

³⁸Willis, op. cit., p. 7.

3. Enrichment of the student-teacher relationship through better use of staff and smaller learning groups.³⁹

Many writers have dealt with the challenges posed by educational television. The previous two selections were illustrative of the general nature of references related to this topic.

Re-examination of Traditional Procedures

Alert, efficient administrations were engaged in the process of continuous evaluation. If any evaluation procedure was to be effective, it had to include a close examination of the "status quo"--of traditional ways of looking at and doing the job. Educational television highlighted two important parts of the act of re-appraisal--(1) evaluating the effectiveness of traditional teaching methods and traditional means of assessing these teaching methods and (2) creating an attitude of receptivity to new ideas among educators.

Stoddard was firm in his belief that one result of the use of television would be an evaluation of the effectiveness of some traditional teaching procedures.⁴⁰ This

³⁹Robert L. Fleming, "Superintendents, Principals, and Instructional Television," NCA Quarterly, XXXII (April, 1958), 365.

⁴⁰Alexander J. Stoddard, "Can TV Teaching Make a

idea was supported by Skornia in more specific terms.

"ETV may bring a re-evaluation of class size and other problems we've really not solved since education became 'print' and 'classroom lecture' based."⁴¹ Educators were urged to reconsider the ingredients of the educational process in order to put them together in such a way as to maximize improvement of the quality of education.⁴² There was a need for educators to develop systems of educational technology. Although referring specifically to the Midwest Project on Airborne Televised Instruction, Kilbourn suggested that the greatest benefit of this work would only result if the evaluation procedures went farther than merely comparing the transmission efficiencies of conventional and television teaching.⁴³

Re-examination of any procedures would be worthwhile only if this process were accompanied by an open

Difference?," National Education Association Journal, XLVI (October, 1957), 441.

⁴¹Harry J. Skornia, "Where We Stand in Educational Broadcasting," National Association of Educational Broadcasters Journal, XVIII (November, 1958), 18.

⁴²Faust, op. cit., p. 50.

⁴³Robert W. Kilbourn, "Midwest Airborne Television and the Technology of Education," Audio-Visual Communication Review, IX (October, 1961), 203.

attitude--a definite willingness to change if change was required. Skornia quoted these words by Cassirer:

.....this is an age of change, motion, speed, instability, and lack of permanency. Yesterday's solutions to various problems are no longer valid today. Printed media can't convey this. Pictures and TV are now too much seen as visual aids. We sometimes need to start with the picture. Sometimes we could best use "verbal" aids to "enrich" the picture, instead of the other way around, as is traditional. Print crystallizes into static notions what should be seen only in motion. We need at least both the word and the picture, forming a single whole, to convey many of today's developments and problems. This is one concept we must explore and develop: a concept of TV as a different type of aid, not simply another one in the usual sense.⁴⁴

Changes in the basic structure of education were cited as a possible need if modern technology and new curriculum approaches were to be introduced. Among the basic structural features requiring change were more flexibility in scheduling, better use of the teachers' skills, and more use of technical aids to learning.⁴⁵ Faust suggested that education could not afford to ignore any new medium of communication because the educational process depended so much upon both oral and printed communication.⁴⁶ Part of the problem in gaining whole-hearted

⁴⁴Skornia, op. cit., p. 5.

⁴⁵"Have We Learned Our Lesson?," National Association of Educational Broadcasters Journal, XIX (November-December, 1960), 43.

⁴⁶Faust, op. cit., p. 44.

acceptance of new technology was attributed to teacher conditioning by print-based procedures.⁴⁷ It was significant that these teachers were then confronted by students who, in their pre-school years, had learned from and been conditioned by electronic, non-linear media such as radio and television.

The previous discussions indicated that television itself, was not used to re-examine traditional ideas and procedures, but that its use in education contributed to an attitude of inquiry and re-assessment. In this way the use of educational television created further impetus for administration to carry out one of its primary functions.

Equalizing Educational Opportunity

Since universal education was a basic precept of the democratic way of life, the equalizing of educational opportunity for all segments of society became a formidable problem for school administration. The use of educational television to assist in the solution of this problem was advocated by many educators. In the literature dealing with this topic, most writers selected one or more

⁴⁷Dave Chapman, Design for ETV (New York: Educational Facilities Laboratories, 1962), p. 158.

sections of the population and showed how these particular groups could be reached by television.

A wide variety of special groups must be educated for the betterment of society. Only a few of these groups were noted here--many more existed, but those selected were representative of the factors involved in this area. Television could contribute greatly to education by helping those who could not attend school due to handicaps, illness, and other physical disabilities.⁴⁸ The major use of television in this instance would be as a supplement to the regular visits of teachers instructing these pupils.

More generalized claims for television's use in special areas were made by Fuller.⁴⁹ He felt the ideal of universal education could be made a fact through adult education programs over television for those who did not have adequate schooling when they were young. Improved teaching in the schools and colleges was a predicted result if television were utilized in instruction at these institutions. Televiewing over open-circuit channels could mean better programming for the pre-school audience

⁴⁸Freida B. Hennock, "Learning English the Hard Way," Elementary English, XXXI (April, 1954), 218.

⁴⁹Fuller, op. cit., p. 40.

and to people of all ages who were not in school.

Pollock predicted new patterns for education in the future as a result of using television for three specific roles:

1. Educational television would be an agent in formally-organized, credit-course programs.
2. Educational television would serve as an initiator of organized, academic courses for which there was a public need, but for which no educational institution had provided a credit program.
3. Educational television would continue to organize and transmit short programs or parts of programs which would serve motivational or enrichment purposes in public education.⁵⁰

A further role in providing enrichment was envisaged in the report of the Education Centre Library.⁵¹ The needs of the more able or gifted students could be met to some extent through an enrichment or extension type of program in several subject areas. This would be most applicable in rural areas where a centralization of

⁵⁰Thomas Clark Pollock, "Educational Broadcasting--Schoolroom of the Future," National Association of Educational Broadcasters Journal, XXI (January-February, 1962), 44.

⁵¹Education Centre Library, op. cit., p. 111.

sufficient personnel and materials was impossible. Actually few geographic boundaries would exist for enrichment activities by means of television.

Television's potential for extending opportunities was obvious. This use of the medium appeared to be one which educational administrators could not afford to ignore.

Providing for a Growing Student Population

The problem of bringing better education to more people had to be faced. In their efforts to cope with burgeoning student populations, lack of qualified teachers, and inadequate facilities, it was natural for educators to turn toward technology as a possible answer. Hull pointed out "the inexorable need to step up quantity, the even more fundamental need to improve quality in education. In the search for solutions to these problems, television clearly has great potential and the search in 1961 is well under way."⁵² Television's potential as an aid to meeting the "numbers problems" in public education received much attention in the professional literature. Typical of this attention was the proposition advanced by Arms that television should be used to help handle the booming

⁵²Richard B. Hull, "A Note on the History Behind ETV," Educational Television: The Next Ten Years (Stanford: The Institute for Communication Research, 1962), p. 345.

student-population explosion at the university level. This would be a direct-teaching application of television.⁵³

There was little doubt that the mass circulation nature of television placed it in the position of being proposed as a mass education medium. This has been, is now, and likely will continue to be done. However, the other side of this question which argues against using television only to reach larger numbers should be recognized. Many of the problems in the use of educational television were the direct result of this preoccupation with large numbers or mass education. Proponents of the mass circulation approach tended to ignore other integral characteristics of the medium and thus destroyed much of television's inherent strengths as a means for communication and education. "When television is thought of as a device for saving money or relieving the teacher shortage, the tendency is to utilize it in a way that limits its effectiveness in the classroom."⁵⁴

Re-deployment of Personnel and Materials

Re-deployment of personnel and resources was discussed from several different viewpoints. These viewpoints

⁵³Arms, op. cit., p. 17.

⁵⁴Educational Policies Commission, op. cit., p. 336.

were characterized more by differences in emphasis rather than differences in nature. All of them were concerned with making better use of available resources--both human and material. Most of the references followed through on the basic idea of team teaching. This concept included such considerations as large and small group instruction, flexibility in organization, and individualizing instruction. A major concern in the area of materials was utilizing the storage facility of television recordings. Other themes suggested application of individual teaching strengths and evolving new concepts in instructional procedures.

The most basic approach to the concept of team teaching was found in the relationship between the television studio teacher and the classroom teacher. In this context instructional responsibility was divided into two people. Siepmann separated the lesson into two parts: (1) exposing and clarifying the principle to be taught and (2) directing classroom consideration of the principle.⁵⁵ He suggested that it would be asking too much for a teacher to bear this double burden. Through the use of television, the teacher's labor was divided. This approach to team teaching differs markedly from the usual

⁵⁵Siepmann, op. cit., p. 12.

conception of team teaching in various individual, small-group, and large-group situations.

Changes in conventional classroom organization were expected to result from the use of television in education. The basis for these changes would involve primarily a combination of large-group and small-group instruction. An extension of the two-man teaching team was seen in the use of television to free other teachers while a single teacher lectured to a large group.⁵⁶ Television was expected to create more opportunity for individualized instruction through reducing the size of learning groups and re-deploying manpower.⁵⁷ Separation into large and small instructional groups was advocated by Stoddard.⁵⁸ He suggested that for half a day the student would receive his instruction in a very large group (75-150 pupils), while the other half of the day would be spent in small-group work. Lewis felt that television's greatest use could be found in the opportunity to reduce the size of

⁵⁶Robert A. Miner, "Television's Role in Improving the Quality of Instruction," N.A.S.S.P. Bulletin, XLVI (May, 1962), 18.

⁵⁷Educational Policies Commission, op. cit., p. 336.

⁵⁸Alexander J. Stoddard, "TV or Not TV?," Education Digest, XXII (May, 1957), 25-8.

learning groups.⁵⁹ Television was expected to convey a great part of the rote material which had to be taught, thereby freeing the teacher for individualized instruction. Concern over the need for both large and small-group instruction was also reflected in the suggestion that all subjects had certain areas amenable to utilization of both large and small instructional units.⁶⁰ Television could provide the required flexibility for more effective classroom organization. Re-deployment of manpower was expected to improve the quality of instruction in several ways. One example was cited in these words: "it is possible for teachers to give more attention to the very important matter of lesson planning and presentation."⁶¹

Related to better use of teaching manpower through changes in classroom organization were two other noteworthy suggestions: (1) better provision for the needs of special learners and (2) improved communication of certain subject matter elements. If television could effect a

⁵⁹Lewis, op. cit., p. 7.

⁶⁰Philip Lewis, "TV and School Planning," National Association of Educational Broadcasters Journal, XVII (May, 1958), 25.

⁶¹Education Centre Library, op. cit., p. 111.

better use of teacher ability and time, it was expected to improve the quality of instruction for retarded, average, and gifted groups by releasing some teachers as a special "task force" to meet the requirements of different types of learners.⁶² The New York State Education Department regarded television's communication strengths to be useful in three specific ways:

1. Instruction to small groups of pupils in several rooms at several schools simultaneously, a process which is impractical by other means...
2. Subject matter which inexperienced teachers can use with their classes...
3. Special or advanced content appropriate for a limited number of pupils per school where the cost of instruction for one group would be prohibitive.⁶³

The attribute of more effective utilization has not been restricted to manpower. Material resources have been assessed carefully in terms of what television could do to improve their usage. A major contribution of television in this regard was its ability to store information through the facility of video-tape recording. Many of the problems created by using the medium, such as space and scheduling, would be overcome by employing television's

⁶²Herold C. Hunt, "Teaching by Television," AERT Journal, XVI (October, 1956), 28.

⁶³John Gross, "Television Taught," New Statesman, LXIII (June 8, 1962), 13.

"storage" characteristics.⁶⁴ Thompson saw video recording as supplementing or even replacing traditional textbooks.⁶⁵ If the availability and circulation of video tapes could be extended to the degree now found in print media, then this suggestion would not be beyond the realm of possibility. One of the most obvious advantages of television as a storage device was the use of videotape recording to reduce the number of times a presentation had to be given.^{66,67} The original presentation could be taped and stored for future use and the tape, itself, could be circulated widely for originating a telecast at any time in any location. Also the original tape could be duplicated as often as required for even wider distribution.

Closely related to the team teaching concept was the suggestion that educational television would bring about a better application of the individual teacher's strengths. The particular skills and abilities of many teachers might be employed in the co-operative planning

⁶⁴Miner, op. cit., p. 19.

⁶⁵Thompson, op. cit., p. 177.

⁶⁶Lewis, op. cit., p. 25.

⁶⁷Philip Lewis, "Closed Circuit TV: New and for the Future," Educational Screen and Audio-Visual Guide, XXXV (September, 1956), 270-73+.

and presentation of educational tele-courses.⁶⁸ Greater flexibility could mean better use of individual competencies because television could create both useful large group and individual teaching situations.⁶⁹ Television would further improve instruction by releasing more time for teachers to extend their individual abilities. While the television teacher was presenting material, the classroom teacher could be devoting concern to other instructional matters. This might reduce the lag between the development of new knowledge and its introduction into the classroom.⁷⁰

The goal of attaining new heights must always be sought by educators. Stoddard suggested that a better re-deployment of personnel and facilities might provide equally effective instruction at the same cost, or more effective instruction with little increase in cost.⁷¹ The resultant situation might mean the reaching of objectives not otherwise attainable, such as more counselling

⁶⁸Ford Foundation, op. cit., p. 68.

⁶⁹Lewis, op. cit., p. 8.

⁷⁰Samuel Brownell, "The Administrator's Viewpoint," Lee S. Dreyfus and Wallace M. Bradley (eds.), Televised Instruction (Detroit: Mass Communications Centre, 1962), p. 12.

⁷¹Stoddard, op. cit., p. 36.

service, better mental health service, and smaller classes in some curricular areas.

Making maximum use of available manpower posed one of the greatest challenges to educational administration. Increasing demands were being placed upon all instructional personnel. These demands could only be met by better utilization of areas of teaching strength. Technological assistance, through such media as television, appeared to be necessary if an effective re-deployment of human and material resources was to be accomplished.

School Building Design

Incorporation of technological aids appeared to have considerable impact upon the area of school building design. A variety of changes was suggested for traditional school architecture. It was interesting to note that not all of the changes would require more in the way of facilities and expense. In the case of a closed-circuit television installation, possible economies in auditorium facilities could result because activities produced in one location could be transmitted to other areas in the school or school system.⁷² Mulford forecast the need for radical new concepts in school building

⁷²Lewis, op. cit., p. 25.

design to provide for the use of television as an integral part of the instructional program.⁷³ The foregoing viewpoint was most elaborately and carefully presented in the report by Chapman.⁷⁴

Although previous reference was made to in-service training, public relations, and direct teaching and enrichment, their frequent mention in the literature dealing with specific administrative considerations in television suggested some further discussion of these topics.

In-Service Training

In-service training constituted another vital area for administrative concern. Probably the greatest difficulty confronted here was communicating new information to large staffs who were scattered throughout many different locations. This topic has been most frequently discussed in references dealing with general uses for educational television.^{75,76} Essentially television's potential contribution to the improvement of in-service

⁷³Herbert B. Mulford, "Catching Up With Television in Education," American School Board Journal, CXXXV (October, 1957), 60.

⁷⁴Chapman, op. cit., p.p. 21-30.

⁷⁵Lewis, op. cit., p. 8.

⁷⁶Education Centre Library, op. cit., p. 111.

training programs was found in its ability to communicate simultaneously from one origination point to an almost unlimited number of reception points.

Public Relations

Public relations was an administrative function of continuing importance. As more financial support for education was demanded from the public it appeared probable that the role of public relations would require even greater concern. Again the basic nature of television as a medium of communication accounted for its potential power as a means for educators to "tell their story" to the public. The mass appeal and mass circulation aspects of television were two reasons for using this medium to carry information to all the segments of society which were directly or indirectly concerned with education.⁷⁷ Lewis suggested the possibility that improved communication between the schools and the community could result in closer, more coordinated efforts toward the accomplishment of common goals.⁷⁸

The greater number of administrative uses assigned to the medium should not be interpreted as an indication

⁷⁷Fuller, op. cit., p. 40.

⁷⁸Lewis, op. cit., p. 40.

that educational television was basically an administrative device. Factors exclusively relevant to the learning process per se were more difficult to isolate, and, too, several of the considerations in the category of instruction were discussed in greater detail in the previous chapter. It seemed highly apparent that television's potential in education was found in both the process of instruction and in the activity of providing for the most effective instruction.

Direct Teaching and Enrichment

Although several topics relevant to the functions of television in education appeared to defy classification as either instructional or administrative in nature, the most difficult subject to categorize was the medium's use as a direct teaching or an enrichment device. Is television essentially to substitute for or to aid the teacher? Both sides of this question have been dealt with at length in the professional literature. In this study the terms "direct teaching" and "enrichment" were used to refer to the extent of instructional responsibility allocated to television. Where televised instruction was to provide the actual teaching of a course or a part of a course, the term "direct teaching" was applied. "Enrichment" referred to those activities where television presentations

were used as a supplement or in addition to the regular course instruction. The references cited here were only indicative of the type of argument which had been advanced by many writers. Most discussions were concerned with television's usefulness in either a direct teaching or an enrichment situation. The medium's effectiveness as a teaching aid was a common theme and this will be considered in more detail.

In 1957 Tyler noted a trend to regard educational television in terms of teacher replacement rather than as an enrichment or supplementary device. It was suggested that perhaps the idea of enrichment was becoming neglected because the wrong kind of enrichment activities were being carried out.⁷⁹ Some concern over television replacing the teacher was evident in several sources. Fagan suggested that this fear was expressed previously over the introduction of books, films, and radio, but that educators not only adjusted to each of these innovations, but made them effective supplements to the classroom teacher.⁸⁰ Simply identifying television as a tool did not go far enough--

⁷⁹Margaret Tyler, "School Broadcasting--Which Way?," Education Research Bulletin, XXXVI (May, 1957), 168.

⁸⁰Edward R. Fagan, "Educational TV--What's the Story?," Clearing House, XXXV (January, 1961), 263-64.

the manner in which the tool was used must also be assessed. Proper handling of this teaching tool was expected to effectively broaden and enrich the education of American students.⁸¹

Most writers who considered television's role in terms of "substitute" or "supplement" have concluded that the medium should be more than a substitute. The following statements were typical illustrations. The great potential of school broadcasting could only be reached if it were used as more than a substitute for the classroom teacher, or a public relations medium.⁸² After a four-year study of a Washington educational television project, Hansen concluded that television should only be used to do those things the classroom teacher could not do.⁸³

Further indications of television's worth as a teaching aid were found in articles by Hungerford,⁸⁴ Aikens,⁸⁵ and Skornia.⁸⁶ Hungerford noted the possibility

⁸¹Ford Foundation, op. cit., p. 68.

⁸²Tyler, op. cit., p. 171.

⁸³Carl F. Hansen, "Washington TV Goes From Boom to Bust," School Executive, LXXV (November, 1955), 80.

⁸⁴E. A. Hungerford, "New Potential for Education," School Executive, LXXV (July, 1956), 64-6.

⁸⁵Aikens, op. cit., p. 36.

⁸⁶Skornia, op. cit., p.p. 3-5+.

of making television much easier to use than film by having several closed-circuit channels available to each classroom in a school. Merely pushing a button would bring in any one of the channels at the desired time. Aikens felt that television would provide a more flexible use of other audio-visual aids by being able to switch from lecture to slide to film to demonstration easily and rapidly in the same lesson. Skornia urged exploration and development of the concept of television as a different type of aid, not just an aid in the usual sense such as the book or film.

Probably no clear-cut answer existed to the question of whether television should be used basically as a means of enrichment or for direct teaching. An extensive survey of opinion regarding this controversy would be required and because such a survey went beyond the scope of this study little more will be said here. However, after a short investigation into the question, the Education Centre Library concluded: "it appears that where opinion favors direct teaching it is implied in what the operators do with the medium or in specific statements about what can be done (e.g. television can be used to bring a higher standard of teaching to more students). Nowhere do we find anyone saying 'television's chief value to education is in direct teaching.' On the other side of the question, when

opinion favors enrichment programming it states as much."⁸⁷ Perhaps the best solution to the problem was not to regard it as involving an "either-or" situation. Informed opinion argued cases for both sides. Obviously television could be used in either role. Whether it teaches directly or enriches should be determined by the needs of the pupils in the particular learning situation under consideration.

V. IMPLICATIONS FOR THE ELEMENTARY SCHOOL

Implications selected for discussion in the final pages of this chapter were those that would expressly affect the elementary school. All of the topics considered up to this point would exert some influence, but the major concern here was with those areas that were particularly pertinent to the special requirements of the elementary school. Again, the organization of this final section was based upon instructional and administrative considerations. Perhaps the dichotomy into instructional and administrative was misleading. Its sole purpose has been to provide an organizational structure. Neither instruction nor administration can stand alone--they must be interrelated completely to produce the maximum learning

⁸⁷Education Centre Library, op. cit., p. 152.

environment.

Instructional implications included the importance of vicarious experience, special production techniques, and assistance for special learning situations.

Providing Vicarious Experiences

The importance of teaching in a meaningful manner, in a setting compatible with the child's experiential background, has been readily acknowledged. Creating real experiences for each concept to be learned was clearly impossible, thus educators had to turn to some form of vicarious experience. Teaching aids, such as books, films, slides, and recordings, were used commonly in this function of providing vicarious experiences. The innate features of television suggested that the medium could also be highly useful in this role. Television could provide vicarious experiences through the presentation of its own "live" or videotape studio productions as well as through the presentation of other aids such as slides, graphs, and films. Meaningful experiences were stressed at the elementary school level and television offered great potential in improving this feature of instruction.

Employing Special Production Techniques

Certain production techniques employed in television

could be highly effective in elementary school teaching. For example, the use of animation and close-up observation of intricate processes were two common methods which could enhance any lesson presentation to elementary school pupils. Although vivid presentations were important at all levels, they appeared to assume increased value for younger learners who were perhaps in need of greater lesson appeal than their older counterparts who might be motivated by such factors as vocational preparation and scholarships or other academic awards. It seemed evident that both the motivation and presentation segments of a lesson could be assisted through the use of television.

Assisting Special Learning

Helping those who have not learned to read or who have reading disabilities exemplified a use for television in a special learning situation. Reading disability was not a problem area exclusive to the elementary school, but the seeds of reading trouble presumably took root at this level. Television's use for the specific area of remedial reading instruction could be applied in several ways: (1) to improve visual and auditory discrimination, (2) to motivate--this value was attributed to many mechanical reading devices such as tachistoscopes and pacers, and (3) to enrich the experiential background of the pupil.

These three uses were clear illustrations of television's role as a teaching aid for special learning situations.

Special groups, such as the physically handicapped and the chronically ill, were found in the elementary school. Perhaps the importance of educating these people was felt more strongly at this level because education was generally compulsory for all youngsters of elementary school age. Communication with an almost limitless range of out-of-school reception points was a basic characteristic of television. This feature could be used to good advantage by elementary schools which were attempting to educate those youngsters who were unable to participate in the regular school program.

The more generalized nature of administrative functions seemed to imply that the points in this category were equally applicable to all school levels. Nonetheless, the previously-stated assumption of particular relevance to the elementary school again defined and guided the considerations dealing with educational television's contributions to the improvement of administrative efficiency. Each of the following topics will be discussed in the light of its significance for elementary school administration: co-operation among school levels, re-examination of traditional procedures, teacher supply, manpower re-deployment,

using staff strengths, and direct teaching or enrichment.

Co-operation at Various Levels

Co-operation among various school levels and agencies became increasingly necessary as educators strove to keep up with the demands being placed upon them. Handling more content and better development of basic skills were indicative of the types of responsibility being passed down to the elementary schools. Through such practical requirements as sharing facilities and exchanging materials it has been suggested that educational television would stimulate much-needed co-operative action. Increasing burdens were being placed upon all grade levels, but the elementary school was being regarded as a particularly crucial part of the total instructional process. The need for greater articulation among school levels was never more apparent. The wide applicability of television seemed to suggest that efficient use of this medium would necessitate a co-operative, co-ordinated effort. It was not clear whether educational television would initiate or encourage co-operative action, but it seemed quite certain that it could contribute in a positive way to this vital need.

Re-examination of Traditional Procedures

If, as some of its advocates maintain, educational

television promoted a re-examination of traditional procedures, then this contribution was of primary importance to the elementary school which urgently required re-organization. Integrating technological advances into conventional teaching has been frequently suggested as one means for improving the quality of education. Also the influence of a dynamic technology was being felt far beyond the limits of formal education. An example of this would be the pre-school child's exposure to television. A certain degree of conditioning by electronic media had doubtlessly taken place which possibly implied making greater use of electronic media in the education of young children rather than the usual reliance on print-based procedures. The over-all upheaval in the traditional thinking among educators created a purposeful re-examination of conventional practices--educational television will probably be one factor that will continue contributing to the state of educational unrest.

Teacher Supply

A shortage of qualified teachers appeared to be crucial at the elementary school level. The ability of television to extend greatly the influence of single presentations and to mass-circulate information has been noted previously. It was conceivable that the reaching

of large numbers for instructional purposes might be useful in some areas of elementary education, but the need for more personal attention at this level would appear to preclude this as a common function.

Re-deployment

Creation of smaller learning groups through re-deployment of teachers could be highly useful in elementary education. Traditionally, the elementary school has been noted for instructional grouping and a further opportunity of providing more individual attention through smaller student-groups would be welcomed. Re-deployment of teaching manpower should result in a more specialized learning situation, a situation which seemed necessary in elementary schools where a single teacher could not do an equally proficient job in a dozen subject fields. Facilitating organization into smaller teaching units might also contribute to more opportunities for remedial instruction and result in a better command of basic learning skills by more pupils. These assets were contingent upon the nature of personnel re-deployment and its actual effectiveness in improving organization for instruction.

Using Individual Teaching Strengths

Use of individual teacher strengths seemed to become increasingly necessary as more demands were placed upon the

elementary school. Some indication of this point was already made in the previous paragraph on personnel re-deployment. Presenting elementary teachers with more specialized instructional tasks would permit greater attention toward the phases of planning, presentation, evaluation, and re-teaching. The extent of advances taking place in every subject field created an almost-impossible job for individual teachers to instruct adequately in all elementary curriculum areas. Once again, sharing ideas and resources and the elimination of unnecessary duplication could assist in bringing about a better level of teaching by capitalizing on the individual strengths of the elementary school teacher. Use of greater specialization has been carried out for years at the secondary school level--now is the time to consider applying this practice for the betterment of elementary education.

Direct Teaching or Enrichment

At the elementary school level, direct teaching seemed unlikely because of the basic need for individual attention, therefore the role for television would appear to be one of enrichment. It was apparent that television could be used in certain direct teaching situations in the elementary school, but the impersonal nature of the medium

suggested strongly an emphasis on the use of television where it could assist rather than substitute for the teacher.

VI. CONCLUDING STATEMENT

In this chapter there were very obvious differences between what could be done and what was being done in the use of educational television. The literature dealing with the functions of television in education has been concerned largely with the potential rather than the actual uses. Television's potential was truly impressive--it presented an exciting topic through which writers could challenge all educators. However, it appeared frequently that the excitement of the challenge led to a lack of careful appraisal, planning, and utilization. The idea of educational television as a cure-all was still common. References examined in this chapter have been strong in showing what could be done--they have been weak in showing how.

Many of the alleged uses for educational television were open to question. The proliferation of claims showed television carrying out effectively almost every facet of the educational process. A large percentage of these claims was questionable. That television can perform adequately certain functions has been conclusively proved.

For example, the many projects which have evaluated the acquisition of information by traditional versus television teaching methods. The vital question asked what can television do and what are its limitations? Many writers have ignored this basic point, thus creating a large body of professional literature which was characterized by unsubstantiated generalizations.

A notable feature of the references included in this chapter was the relatively early dates of publication. Most of the references were published prior to 1960 with the greatest concentration in the 1957-1958 period. The apparent lack of material in recent years was disquieting in view of the highly dynamic nature of contemporary education. Particularly disturbing was the implied lack of concern among elementary school educators. The only reference which dealt with the functions of television at specific grade levels was written in 1947.⁸⁸ This lack of recent emphasis might partially account for some of the problems which have occurred in many practical applications of the medium.

Obviously many of the uses dealt with in this chapter were beyond the scope of purely in-school instructional television. For example, applications to

⁸⁸Stasheff, op. cit., p. 57.

problems of in-service training and public relations were given only brief treatment because they were outside the limits of this study. It was necessary to include a varied selection of the potential uses of the medium to convey accurately the approach to this topic which was reflected in the professional literature. There was a strong suggestion that the generalized, all-encompassing viewpoint had been largely responsible for the state of educational television's development.

CHAPTER V

ADVANTAGES AND DISADVANTAGES OF TELEVISION IN EDUCATION

Within the professional literature on educational television there were countless references to the advantages and disadvantages of the medium. Whether implied or stated directly, these aspects of television have been a part of nearly every article or book section which dealt at any length with the suitability of the medium for instructional purposes. It was the task of this chapter to organize the various claims for and against television into a plan of systematic grouping which would enable a more objective and complete examination of the medium's potential contribution to education. The material in the chapter again represented a highly generalized discussion of television rather than consideration of its specific applicability to the elementary school level. Much of the content will be similar to that of previous chapters on the nature of television and the uses of television in education, however, the emphasis at this point will be directed toward isolation of the advantages and disadvantages for closer appraisal.

The alleged advantages and disadvantages were largely the result of opinion formulated from either

thoughtful consideration of or actual experience with the medium. Little objective evidence could be found to prove or disprove the veracity of the claims.

Sixty-six articles and seven sections of books have been examined for this chapter. Six of the references specifically mentioned the elementary school.

I. TOPICS TO BE CONSIDERED

Although two major topics were obvious in the title of this chapter, a third area was sufficiently important to be given the separate classification of problems arising from the use of television in education. The many alleged advantages of the medium will be considered first. An equally large number of alleged disadvantages will then be presented after which attention will be devoted to the problems that were suggested by actual and potential applications of the medium. Problem areas were dealt with in this chapter because of the close relationship existing between disadvantages and problems. The numerous characteristics included in the foregoing categories suggested a number of implications for the elementary school--these implications will constitute the content of the final section of this chapter.

II. ADVANTAGES OF TELEVISION IN EDUCATION

Most of the advantages revealed in the professional literature were technical features inherent in the nature of the medium. However, several other factors involved in the use of television for instruction were also noted as possible advantages.

Technical Factors

The simultaneous audio-visual impact of the medium appeared to be the most significant of the technical features. Appealing to both the eye and the ear gave television additional strength in the process of communicating ideas.¹ This feature was expected to enhance teaching procedures by imparting a mental stimulus to study, that is, it was supposed to stimulate sufficiently the student so that he could proceed on his own.² Better learning could result from the reinforcement nature of television's impact on both the visual and aural senses.³

¹R. S. Lambert, "The Challenge of Television in Education," Canadian Education, XIII (June, 1958), 30-4.

²Ibid, p. 33.

³Harold B. Dunkel, "Viewing Educational Television," Elementary School Journal, LVIII (February, 1958), 245-48.

The audio-visual nature of the medium in combination with its comparative newness to most instructional programs could further learning through attracting attention and creating interest.⁴

Television's ability to produce close-ups or magnified pictures of items brought a new degree of visibility to instructional demonstrations.⁵ This magnification quality enabled the focusing of attention on single objects for an extended period of time.⁶ The advantages to science instruction and other presentations involving demonstrations were readily apparent.

Not only would the magnified segment of a demonstration better reveal what was taking place, it would also help to focus or centre the learner's attention because a close-up view would fill the television screen and eliminate distracting influences from other parts of the activity.

Transmission of several types of visual materials

⁴Helge E. Hansen, "How Practical is Television for the Average School?," Nation's Schools, XLVIII (November, 1951), 78+.

⁵"Educational Television: Two Antithetical Analyses," Phi Delta Kappan, XXXVIII (April, 1957), 267.

⁶Adah Miner, "ETV: It's All in How You View It," National Education Association Journal, L (May, 1961), 46-7.

from one location to a great number of other locations was an important advantage of television.^{7,8} Films and slides were examples of the type of visual material which could be circulated widely by the medium. The fact that several items could be circulated from a single transmission point effected many economies in time and use of materials. Another advantage of this transmission feature was the simultaneous reception of one presentation at numerous locations.

Immediacy has been suggested as one of television's greatest assets.⁹ The power to be current, to be capable of presenting visually and aurally almost any event as it actually took place was an achievement which could not be matched by any other medium.¹⁰ Even in cases where events were videotaped before being transmitted, there were few media which could compete with the speed of television in presenting information to a large audience. Pupils could see important events--local or international in scope--as

⁷Ibid, p.p. 46-7.

⁸Hansen, op. cit., p.p. 78+.

⁹Allan S. Williams, "Television in Education: Possibilities and Obstacles," School Review, LXIV (April, 1956), 187-90.

¹⁰Lambert, op. cit., p.p. 30-4.

they happened.¹¹ An additional benefit of immediacy was its impact upon the viewer, an impact which resulted from the knowledge that the event was taking place at the same time it was being viewed.¹²

Another feature of television's appeal to both the eye and the ear was the feeling of intimacy which the medium could convey. In many instances the pupil felt that he, personally, was being addressed by the television teacher.¹³ Probably the face-to-face nature of many television presentations accounted for this feeling of intimate contact which could arise between pupil and teacher.¹⁴

The breadth or scope of coverage which emanated from television's power as a mass communication medium holds many advantages for education. Limitations of space and distance could be easily overcome.¹⁵ Again, the influence

¹¹Elinor Richardson, and Robert C. Gerletti, "Television in the Classroom," California Journal of Elementary Education, III (November, 1961), 102-11.

¹²Hansen, op. cit., p.p. 78+.

¹³"Educational Television: Two Antithetical Analyses," Phi Delta Kappan, XXXVIII (April, 1957), 267.

¹⁴Williams, op. cit., p. 188.

¹⁵William B. Levenson, and Edward Stasheff, Teaching Through Radio and Television (New York: Rinehart and Company, Incorporated, 1952), p.p. 5-23.

of a single presentation could be extended to large audiences.¹⁶ Although this study's basic concern was with in-school instructional television, it was important to note that the boundaries of instruction were extended far beyond the physical limits of the classroom when the transmission facilities of television were employed.

Special dramatic effects from the use of music, lighting, and photography were basic elements in effective television production. When properly applied these production devices created considerable emotional appeal. It was conceivable that such an appeal to the emotions could be a strong factor in the creation of desirable attitudes among learners.¹⁷

Skillful employment of various special production techniques through television could create a feeling of immediacy, develop a continuous flow of instructional activity, and enhance the visual appeal of any presentation. Re-creation of an historical event could bring a sense of immediacy into study of the past. Such technical difficulties as the time lag for a reaction in a science

¹⁶"Use of Television in Education," in A Television Policy for Education, Carroll V. Newsom, editor (Washington: American Council on Education, 1952), p.p. 139-41.

¹⁷Levenson and Stasheff, op. cit., p.p. 5-23.

experiment could be overcome by the use of film or videotape recording for the television presentation. Utilization of several teaching aids, such as charts, slides, films or opaque projection, in a single lesson could be done effectively over television in such a way that the visual appeal of any lesson would be vastly improved.

Utilization Factors

Among the advantages arising from the use of television for instruction, one that was most frequently mentioned in the professional literature was the provision of unique educational experiences. As a visual aid, television could provide vicariously experience which would supplement effectively the regular instructional program.¹⁸ Good instruction in special subject areas, such as science and mathematics, could be brought to rural regions where qualified teachers for special subjects were not available.¹⁹ Television could be used for visual demonstrations of procedures and operations which required apparatus and facilities not commonly found in the average classroom.²⁰ Educational experiences far beyond the means

¹⁸Victor W. Doherty, "ETV: How Sound An Investment?," American School Board Journal, CXXXVIII (May, 1959), 29-31.

¹⁹Ibid, p.p. 29-31.

²⁰Lambert, op. cit., p.p. 30-4.

of the conventional classroom could be brought to many pupils. An example of this point was the poetry reading of Robert Frost to fifth-grade youngsters in one segment of Pittsburgh's educational television programming.²¹ Pupils could be given an opportunity to learn from specialists or authorities in varied subject fields. The specialist need only teach the lesson once and this lesson could be presented several times to thousands of pupils.²² Inaccessible places could be visited and dangerous and expensive equipment could be demonstrated and examined--the television camera could move into many places not suited for classroom-size groups of children.²³

The scope of good teachers could be extended many times by television. This scope might be enlarged as far as television could carry the teacher's contributions to pupils.²⁴ Teachers with outstanding abilities in special fields could make a single presentation which could then be transmitted to large audiences. If the presentation were

²¹Ford Foundation, Teaching by Television (New York: The Ford Foundation, 1961), p.p. 4-5.

²²Richardson and Gerletti, op. cit., p.p. 102-11.

²³Ibid, p.p. 102-11.

²⁴Edgar Fuller, "An Educator's-Eye View of ETV Networks," National Association of Educational Broadcasters Journal, XIX (May-June, 1960), 51.

recorded then it could be rebroadcast time and time again.²⁵ A previous example of exposing specialists to large numbers of children who would otherwise be deprived of such an experience would also be applicable here.²⁶

Due to the frequent exposures which could result from a single television presentation, much time that would ordinarily be devoted to preparation and repetition of the same lesson could be used for other purposes. Wasteful duplication of preparation and teaching effort would be reduced.²⁷ Releasing more time for the teacher might have several beneficial results. Lessons could be better prepared when the teacher had more time to carry out his preparation.²⁸ Teachers would be given an opportunity to discover learning problems of pupils as the youngsters viewed the telelessons.²⁹ The television teacher, too, could spend more time in researching resource areas, as well as organizing and developing the lesson.³⁰

²⁵Richardson and Gerletti, op. cit., p.p. 102-11.

²⁶Doherty, op. cit., p.p. 29-31.

²⁷Samuel Brownell, "The Administrator's Viewpoint," in Televised Instruction, Lee S. Dreyfus and Wallace M. Bradley, editors (Detroit: Mass Communications Centre, 1962), p. 7.

²⁸Ibid., p. 7. ²⁹Miner, op. cit., p.p. 46-7.

³⁰Richardson and Gerletti, op. cit., p.p. 102-11.

Utilization of educational television could be expected to improve the quality of instruction because of its stimulating effect upon teachers. The example of good teaching by master television teachers should help to inspire better efforts by regular classroom teachers.³¹ Television teachers, knowing they were being watched by large numbers of their peers, should be motivated to put forth their best efforts.³² Additional motivation for teachers on both sides of the television screen could lead to an upgrading of the total instructional program.

A single television program could serve a variety of educational purposes. If the program were recorded, then its re-use could obviously be applied to several different objectives. The same lesson might be used by several teachers in different classrooms. It might also be used by the same teacher at different times. Certain lessons could be used to motivate, to introduce a new unit, or to review work already taken.³³

The superior "observation" qualities of the television camera could be employed in several useful ways

³¹Doherty, op. cit., p.p. 29-31.

³²"Educational Television: Two Antithetical Analyses," Phi Delta Kappan, XXXVIII (April, 1957), 267.

³³Miner, op. cit., p.p. 46-7.

which were not a direct part of classroom instruction. Television provided an excellent means of observing actual classroom activity with a minimum of disruption. An obvious use for this advantage would be the training of teachers.³⁴ Another function which had been successfully undertaken was the use of television to show the public what transpired inside the classroom.³⁵ Better education depends upon a supply of well-trained teachers and the support of a well-informed public--educational television could contribute to both of these areas.

III. DISADVANTAGES OF TELEVISION IN EDUCATION

Influences affecting either the learner or the teacher could not be isolated completely from each other in any consideration involving education. However, in the task of classifying the limitations of educational television, some arbitrary assignments to one category or another were necessitated. Those disadvantages which most directly pertained to the learner were so classified. Similarly, the liabilities most pertinent to the teacher

³⁴Carlos de Zafra, "Some Pros and Cons of CCTV," Clearing House, XXXII (November, 1957), 152-54.

³⁵Hansen, op. cit., p.p. 78+.

were accorded an appropriate designation.

Limitations From the Standpoint of the Learner

Certainly the most frequently mentioned disadvantage of the medium was the lack of provision for individual differences. Fuller suggested that large audiences watching television "must receive broadcasts based upon an educational common denominator, and the larger the audience the larger the number of pupils whose needs do not fall within that common denominator."³⁶ Due to the nature of a telelesson everyone in the audience was exposed to the same material at the same rate of presentation.³⁷ This charge, of course, could be levelled against any one-way presentation technique. Only highly specialized curriculum areas provided a television teacher with the opportunity to organize his presentation on the basis of the needs and interests of individual learners.³⁸ The television teacher who was instructing large audiences could not possibly know the individual characteristics of

³⁶Fuller, op. cit., p. 51.

³⁷Marjorie G. Dawson, "Is Something Wrong With the ETV Picture?," National Education Association Journal, L (May, 1961), 43-5.

³⁸Hollis L. Caswell, "A Curriculum Viewpoint in Educational Television," Educational Leadership, XV (November, 1957), 107-15.

the pupils he was teaching.³⁹

Closely related to the foregoing discussion was the lack of interaction between student and teacher during the usual form of instructional telecast. In some cases a type of feed-back or intercommunication device has been used, but these instances were infrequent. Arousal of curiosity and interest among the pupils was an essential prerequisite for learning--the questions of the curious child went unanswered as the television teacher moved through his lesson.⁴⁰ Due to the absence of two-way communication between the teacher and the pupil, the television teacher could not judge how well he was being understood as his lesson progressed.⁴¹ Another major difficulty was the inability of the television teacher to clarify misunderstandings which could arise during the course of the telelesson.⁴²

In most situations educational television was highly inaccessible to the learner. The usual course of only one showing of a telelesson was a good example of

³⁹

Ibid., p.p. 107-15. ⁴⁰Dawson, op. cit., p.p. 43-5.

⁴¹Helen M. Robinson, "Educational Television," Elementary School Journal, LVII (May, 1959), 412-15.

⁴²Harold H. Aikens, "Educational Television and the Curriculum," Ohio Schools, XL (March, 1962), 36.

this inaccessibility. If the pre-broadcast and post-broadcast learning activities were to be most effective, the telelessons should be available to the classroom teacher for more than a single showing.⁴³ In his consideration of the relative accessibility of instructional media, Forsdale placed television far to the left of his "A-Line."⁴⁴ He set up an imaginary horizontal line which he called the "A-Line" or Accessibility Line. The right end of the line represented educational media whose products were readily accessible to the learner when he required them. The left end of the line represented educational media whose products were not available to the learner on demand due to technical or economic limitations. In his distribution of various media along this line, he placed books, audio recordings, and certain teaching machines to the right, while television was at the far left. This positioning of television was attributed to the fact that a student could not select from the full range of produced programs the one which he desired to see now because television programs were controlled at the point of origination, not at the point of reception. This meant that television was

⁴³Fuller, op. cit., p. 51.

⁴⁴Louis Forsdale, "Is TV Accessible?," Education Digest, XXVII (March, 1962), 25-7.

felt to be one of the most inaccessible of all audio-visual teaching aids.

The impersonal nature of educational television has already been referred to in discussions of lack of attention to individual differences and lack of interaction between teacher and pupil. However, another aspect of the reduced personal interaction brought about by television was the factor of teacher interest. The television teacher was unable to take a personal interest in the achievement of his pupils as individuals. For this reason Caswell argued that "taking teachers who have exerted great influence on students out of classrooms and putting them in television studios, far from extending their influence, may substantially reduce such influence."⁴⁵

Limitations From the Standpoint of the Teacher

The most vital disadvantage to the teacher was the restriction television imposed upon his range of teaching methods. Even the master teacher was limited to an almost exclusive use of the lecture-demonstration method.⁴⁶ It was highly questionable whether this practice was based upon an adequate conception of the nature of the individual

⁴⁵Caswell, op. cit., p.p. 107-15.

⁴⁶Dawson, op. cit., p.p. 43-5.

learner. The suggestion that what was presented was what was learned seemed a false premise underlying exclusive use of the lecture method.⁴⁷ Pupil activity during a tele-lesson was largely limited to listening and observing.⁴⁸ Television failed to reduce the amount of "listening" and increase the amount of "doing" on the part of the pupils. Among the other instructional activities which the television teacher was unable to conduct were directing and supervising the lesson follow-up, application of principles, guidance, and counselling.⁴⁹

Another limitation from the teacher's standpoint was the reduced status for the classroom teacher which might result from the use of television. This would clearly be governed by individual circumstances, but it could be possible for some classroom teachers to simply become "watch dogs" or "baby sitters." The classroom teacher, under certain conditions where television was used for direct teaching, could become someone who merely adjusted the set, patrolled the aisles, and maintained order during the telelesson.⁵⁰

⁴⁷Robert W. Kilbourn, "Airborne Television and the Technology of Education," Education Digest, XXVII (December, 1961), 40-2.

⁴⁸Caswell, op. cit., p.p. 107-15.

⁴⁹Aikens, op. cit., p. 36. ⁵⁰Dawson, op. cit., p. 43.

A possible danger of extensive use of television in the classroom was that it might become a crutch rather than an aid. As the classroom teacher abdicated gradually more of his job to the television teacher he could become wholly dependent upon the instruction given during the telelesson. Frequent use of television might tend to reduce the teacher's opportunities for creativeness.⁵¹

Fragmentation of the curriculum was raised as another objection to the use of educational television. In cases where different teachers conducted telelessons in different courses, it was quite possible that a lack of subject integration could result. This would be especially apparent in situations involving telelessons produced by people outside the particular school system.⁵²

IV. PROBLEMS ARISING FROM THE USE OF TELEVISION IN EDUCATION

Several factors which were suggested as disadvantages appeared to be better designated as problems resulting from attempts to use television for instruction. A very thin line of distinction existed between "disadvan-

⁵¹James Binney, "Criticism, Research, and Tag Lines," Clearing House, XXXIII (May, 1959), 534-36.

⁵²Caswell, op. cit., p.p. 107-15.

tages" and "problems," but this line has been drawn by writers in the professional literature. For that reason the separate divisions were continued here. Disadvantages appeared to be more closely related to the nature of the medium, while problems were associated with the way the medium was used.

Poor Production Quality

A noticeable lack of production quality has plagued many of the television presentations designed for educational use. Several reasons were suggested for this weakness. Too often the best teachers were not being used for television. Frequently classroom teachers did not conduct follow-up activities.⁵³ A large part of the difficulty could be traced to inadequate equipment and facilities. The adequacy of school buildings for television utilization has been questioned.⁵⁴ Problems in this area included proper design of new buildings and adequate modification of existing buildings.⁵⁵ Insufficient numbers

⁵³Charles A. Siepmann, "Television in Education--Today and Tomorrow," Canadian Education and Research Digest, I (September, 1961), 14.

⁵⁴Philip Lewis, "TV's Exciting Developments," Educational Screen and Audio-Visual Guide, XXXVIII (May, 1959), 237.

⁵⁵Ford Foundation, Teaching by Television (New York: The Ford Foundation, 1961), p.p. 4-5.

of television sets for classrooms presented another obstacle to effective use of the medium.⁵⁶ Keeping up with technical advances and new equipment developments was another major difficulty.⁵⁷ MacKenzie suggested that "too many administrators of our country's ITV projects have purchased limited-range equipment, hired inexperienced people for top production roles, done without adequate technical help, skimmed on art and graphics, operated out of makeshift facilities, and.....caused their studio teachers to present telelessons that were ill-prepared and hastily-rehearsed."⁵⁸

Adaptations Required by Television

Adapting content, teaching personnel, and instructional methods to television has been another primary problem area. Answers had to be found to the following questions: what methods of instruction are best suited for television? how can an adequate supply of trained television teachers be developed? what training is required

⁵⁶Leonard W. Ingraham, "How Our Schools Are Using Educational Television," Social Education, XIX (May, 1955), 199-202.

⁵⁷Lewis, op. cit., p. 237.

⁵⁸John K. MacKenzie, "How to Improve the Quality of Telelessons," National Association of Educational Broadcasters Journal, XXI (November-December, 1962), IV.

to enable classroom teachers to make the maximum use of television?⁵⁹ Educators appeared to be troubled by a lack of mastery over the new teaching techniques developing from television. Team teaching was illustrative of these new techniques.⁶⁰ Problems arose because teachers were going to have to learn to use new techniques, better methods for storing information were required, new courses must be developed, and there was need for improving the visual presentation of subject matter.⁶¹

Scheduling

The most frequently mentioned single problem area was that of scheduling. This problem including timing the telecasts so that they were available at times suitable for all who wished to use them and fitting the telecasts into class periods of varying lengths.⁶² At all levels, scheduling posed a major difficulty to effective, widespread use of television, but in departmentalized

⁵⁹Lewis, op. cit., p. 236.

⁶⁰Ford Foundation, op. cit., p.p. 13-6.

⁶¹Devere Logan, "ETV Considerations for School Board Members," National Association of Educational Broadcasters Journal, XVIII (March, 1959), 23.

⁶²Ford Foundation, op. cit., p.p. 13-6.

schools the problem became most formidable.⁶³

Cost

Costs and financial considerations constituted a universal problem area in education. Obtaining adequate funds for both capital and operating expenditures was one of the biggest problems in the development of educational television. Many projects suffered because those responsible were deluded into thinking that good quality could be produced with limited funds. A major explanation for the lack of capital was a lack of appreciation of television's potential by many educators.⁶⁴ In many areas where sufficient money was not available, educational programming was presented over commercial stations. As a result the most desirable time periods were often not available and the effectiveness of the instructional telecast was greatly reduced.⁶⁵

The Novelty Effect

Television's novelty or newness often led to unwise use of the medium. In some cases it has been applied to

⁶³Alexander J. Stoddard, "TV or Not TV?," Education Digest, XXXII (May, 1957), 25-8.

⁶⁴MacKenzie, op. cit., p. 6.

⁶⁵Logan, op. cit., p. 23.

functions for which it was not suited.⁶⁶ The problem of costs, dealt with previously, was also a factor influencing the novelty aspect of television. Large-scale, "network-type" enterprises have been undertaken to reduce the broadcasting costs per pupil. Rare instances of an over-committment of money sometimes resulted in too rapid utilization of the medium without proper planning and organization.⁶⁷

Control

The scope of educational television raised problems regarding control of the medium's development and use. The "local" nature of the control of the medium was offered as one explanation for some of its defects. On the other hand, centralized organization and production elicited the objections of centralized control. Siepmann suggested local option for designating what was to be produced and how it was to be produced, with some type of centralized production centre to carry out the actual work.⁶⁸

Curriculum Needs

Meeting the curricular needs of more than one

⁶⁶Binney, op. cit., p.p. 534-36.

⁶⁷Fuller, op. cit., p.p. 52-3.

⁶⁸Siepmann, op. cit., p. 14.

school system was another problem area for which there were no easy solutions. The larger the area covered by the telecasting, the greater the difficulty in relating the problem to a specific segment of the curriculum.⁶⁹ Critics of more standardization in the curriculum cited what Berkman termed the "Orwellian implications" of educational television.⁷⁰ He suggested that curriculum reflected society and any further move toward standardization would only hasten the current trend of more rigidity and conformity in society.

Television's Place in the Total School Program

The place of television in the total instructional program was another problematical consideration. A suitable balance between televised and conventional instruction had to be achieved at each school level.⁷¹ Careful experimentation involving varied, but rigorously-controlled conditions appeared to be the only means of establishing the maximum balance.

Acceptance of Television

⁶⁹Aikens, op. cit., p. 37.

⁷⁰Dave Berkman, "Dissent on ITV," National Association of Educational Broadcasters Journal, XX (March-April, 1961), 6-7.

⁷¹Lewis, op. cit., p. 236.

Lack of universal acceptance by educators has been noted as one of educational television's basic problems.⁷² An excellent listing of possible reasons for this situation was suggested by Simpson:

1. Televised lessons were resented by many educators who regarded them as "impertinent" innovation. They feared the new, wishing to stay with the old.
2. Teachers feared automation. He suggested that educational television should not be used to replace, but to augment or supplement.
3. Many educators could not be bothered with the extra problems created by the use of television. If the advantages of something were to be enjoyed, then the disadvantages must also be accepted.
4. Many classroom teachers seemed to feel that television would relegate them to an inferior role. This would only happen if teachers allowed it to happen.⁷³

The Requirement of Greater Co-operation

Television's scope and complexity created the need

⁷²Henri Dieuzeide, Teaching Through Television (Paris: Organization for European Economic Co-operation, 1960), p.p. 25-30.

⁷³Garry Simpson, "Why Doesn't Your School Use ETV?," National Association of Educational Broadcasters Journal, XXI (September-October, 1962), 6-10.

for closer co-operation among more people if a suitable educational product were to be offered. The efforts of the television teacher and the classroom teacher had to be co-ordinated for optimum results. Feedback provisions and co-operative planning patterns must be developed.⁷⁴

Further co-operation and co-ordination must be effected between educators and broadcasters. The necessity for technical competence meant that areas previously under the exclusive domain of education had been invaded by people who were not "professional" educators.⁷⁵ In each of the above cases, co-operation requirements became increasingly demanding.

V. VALIDITY OF TELEVISION'S ALLEGED ADVANTAGES AND DISADVANTAGES

Even though the foregoing pages of this chapter contained only a selection of the claims for and against the use of television in education, the large number and variety of advantages and disadvantages was obvious. Equally apparent was the considerable volume of differing opinion regarding most of the alleged "pros" and "cons."

⁷⁴Lewis, op. cit., p. 236.

⁷⁵Dieuzeide, op. cit., p.p. 25-30.

Many of the factors were truly allegations--they have not been conclusively proved or disproved. Others appeared to be quite valid in the light of the available evidence. In attempting to indicate the validity of the various factors, this section will follow the same grouping plan established in the previous sections on the advantages and disadvantages of using television for instruction.

Claims Regarding Technical Factors

Most of the claims relevant to the technical aspects of television and their potential contributions to better education appeared to be valid. The wide scope and coverage of television, its ability to transmit a signal from one origination point to many different reception areas, and its power to magnify and produce close-up views of varied materials and processes could not be refuted. That television appeals simultaneously to both visual and aural senses was an accepted fact, but questions could be raised regarding the truth of statements that this audio-visual appeal had special powers of stimulation, reinforcement, and inspiration. Television's characteristic of immediacy was readily acknowledged, but the small amount of times that the immediacy feature was utilized suggested the characteristic had only potential value. The same statement could be applied to televi-

sion's power to employ special effects, such as music and drama, for enhancing instruction. How much use was made of musical and dramatic effects in the lecture-demonstration format of most educational television offerings? Another alleged advantage, intimacy, was highly questionable. Although difficult to prove one way or another, it seemed unlikely that the intimacy of any television presentation could be equal to that of direct personal contact.

Claims Regarding Utilization Factors

Several claimed advantages arising from the use of television in education were difficult to either accept or reject in total. The potential of the medium for observational functions in such fields as public relations and teacher training was certain. It seemed generally acceptable that television was capable of providing unique educational experiences that were beyond the reach of most conventional classrooms. How unique or how beneficial these experiences could be would depend entirely upon the individual situation's circumstances. Recorded telecasts could be re-used for the same or different purposes, however, it appeared that only the originally-stated objectives of the specific telecast would be best served. A program designed for motivation was not likely to be equally effective for review. It was extremely difficult

to evaluate the claim that television produced more spare time for teachers due to such factors as single presentations being re-used, and better use of resource materials. The actual procedures employed in a given situation would determine the validity of this claim. Extending the influence of good teachers was a moot point. Clearly these teachers could be exposed to a much larger audience, but the limitations of a television presentation restricted their teaching methodology. Very doubtful was the claim that television stimulated teachers to greater efforts. This might occur in individual cases, but applying it as a broad generalization was questionable.

Claims Regarding Disadvantages and Problem Areas

Frequently it was easier to be destructive than constructive. This seemed to apply here where the majority of suggested disadvantages of television in education appeared to be quite valid. Certainly individual learning problems were not taken into account by a television teacher working before a camera instead of a classroom of children. Exponents of educational television would argue that the problem of individual differences should be taken care of by the classroom teacher working in conjunction with the television teacher. However, it was clear that the actual telelesson was generally not flexible enough to

provide for individuals during the progress of the television presentation. The impersonal nature of television was openly recognized, although the medium was probably closer to personal contact than most other audio-visual media. Inaccessibility was another alleged disadvantage which appeared to be valid. Necessary preparation such as the location of sets, specific schedules for programs, and space requirements meant that television could not be used by the individual pupil whenever he desired. Lack of interaction between pupil and teacher could be overcome to a limited extent by the employment of technically-elaborate "talk-back" devices. This equipment was not commonly found in educational television projects, thus the relative absence of interaction could be classified accurately as a disadvantage of the medium.

The most valid disadvantage of television from the teacher's standpoint appeared to be the restrictions placed upon instructional methods. Due to the essentially one-way presentation to large audiences, the teacher could vary rarely from the lecture-demonstration technique. A tendency toward fragmentation of the curriculum resulted from the use of television. However, the extent to which fragmentation took place was determined by the extent and nature of the use of televised instruction. Limited use

of locally-produced telelessons would minimize the fragmentation. Extensive use of telelessons produced outside the school system would further fragmentation. Two alleged disadvantages--reduced status for the classroom teacher and over-reliance upon television were highly unlikely. No evidence existed to support these allegations and no reports of actual experiments have even suggested these results as remote possibilities.

VI. IMPLICATIONS FOR THE ELEMENTARY SCHOOL

The highly generalized nature of the previous discussions of advantages, disadvantages, and problem areas made difficult the task of drawing specific implications for the elementary school. For most of the characteristics which were considered there was no special significance for particular school levels. What was true for one grade level, in most cases, was true for another grade level. However some factors suggested relatively more important implications for the use of television in an elementary school setting. The advantages associated with technical factors appeared to hold particular significance for instructional concern, while the advantages associated with utilization factors appeared to be most relevant for administrative concern.

Technical Considerations

Advantages associated with the technical factors of television indicated the possibility of improved motivational procedures, enriched instructional offerings, and better use of specialized teaching personnel. The simultaneous audio-visual impact of the medium and the ability to employ special effects could be effective in arousing the interest of elementary school children. An enriched instructional offering could result from the use of close-up camera techniques for demonstrations and the wide scope of television which might accomplish such feats as bringing current events right into the classroom at the same time these events were occurring. Certain talents and special abilities of teaching personnel could be brought to many locations beyond the boundaries of the individual's own classroom, school, or school system.

Utilization Considerations

Again better utilization of teaching personnel appeared to be a major implication arising from the alleged advantages of the use of television in education. An enriched and expanded instructional program was another apparent possibility for the elementary school as a result of certain advantages attributed to television. If, in fact, more time were provided for teachers and, if

certain "master teachers" were properly used in a television project, then there would most certainly be some favorable contribution toward better use of the teaching staff's time and talent. A more effective deployment of individual teaching strength would be very welcome in elementary schools where the typical teaching load involved instruction in ten to twelve subject areas. Television's ability to provide unique educational experiences, such as a trip to the operating room of a large hospital, would enrich many curricular areas for the elementary school. The use of specialist teachers or resource people in special areas such as art, music, and physical education might make possible broader instructional programs.

Again definite lines appeared to exist for both instructional and administrative concern. Instructional factors tended to arise from the alleged disadvantages and administrative factors were found in the suggested problem areas.

Considerations Arising From Disadvantages

Among the disadvantages suggested as particularly important from the learner's viewpoint, the most evident weakness arose from the lack of personal contact which appeared to be even more important in the elementary school than it was at other school levels. Provision for

individual differences, the need for interaction between teacher and pupil, and personal interest and contact with the pupil were all reduced in situations involving televised instruction. The lack of physical and intellectual maturation in the elementary school child underscored the importance of close personal contact between the teacher and his pupils.

The most significant limitations in the eyes of the elementary school teacher would be the restriction on teaching methods and the fragmentation of the curriculum which allegedly resulted from televised instruction. The lecture-demonstration format had obvious disadvantages for frequent use in the elementary school. Limited attention-spans and the need for a certain amount of activity were vital considerations at the elementary level. Integration of various subject fields was considered essential to good elementary school instruction. An over-use of television at this point could reduce the effectiveness of such worthwhile instructional goals as closer integration of all the subjects in the area of the language arts.

Considerations Arising From Problem Areas

Several problem areas were selected for consideration in the previous pages of this chapter. All of the topics chosen were relevant and all were formidable

obstacles to employing effectively televised instruction. In the majority of those problem areas there was little which could be deemed especially pertinent to any one school level. All of the difficulties involved in adequate financing, satisfactory control of development and utilization, lack of acceptance among teachers, poor production quality, and the need for co-operation with a variety of interests were equally troublesome for secondary and elementary school administrators. Three areas did appear to merit additional attention--scheduling, the place of television in the total instructional program, and adapting content, methods, and personnel to television. Due to the frequency with which scheduling was listed as a basic problem area it was significant that this difficulty was not as pronounced in the elementary school as it would be in secondary schools where a higher degree of departmentalization was found. Over-use of televised instruction would be undesirable at any level, but the potential danger in the elementary school bore noting. The need for a closer teacher-pupil relationship in the lower grades indicated that television should possibly be used less in the elementary than in secondary school. This statement was particularly applicable when television was used as a means of direct teaching. A final problem area that might

be affected significantly at the elementary school level was that of adapting to the use of television. Where one teacher handled a large number or even all of the subjects for one grade level, it was possible that, in some cases, content and teaching methods might be more readily adapted to presentation over television. Here the more frequent contact with a smaller number of pupils might effect an easier integration of television into the regular instructional program.

VII. CONCLUDING STATEMENT

All of the previous factors involved in each of the topics of advantages, disadvantages, and problem areas were chosen because they were indicative of the types of considerations being made about the potential value of television in education. Although the problem areas dealt with arose from a fairly small sampling of the total number of references on the subject, the groups of advantages and disadvantages were quite representative.

The most apparent weakness in the literature referring to television's assets and liabilities was the highly generalized nature of the majority of discussions. Flat statements for or against various aspects of the medium were presented as being wholly applicable to the

entire field of educational television. In most instances these statements were lacking in any form of evidence--objective or otherwise. The general nature of most comments also made it difficult to treat these topics from the standpoint of a specific school situation. For these reasons it should be noted here that a very high degree of subjectivity could be found in the content of this chapter.

Any attempt to weigh the relative advantages or disadvantages of television as a medium of instruction must be made in the light of specific circumstances. Enlightened appraisal would require an awareness of the needs of the particular situation and the potential of the medium must be assessed in terms of these specific needs.

The growing complexity of education, the advances in knowledge, the pressure to keep up-to-date with current developments all created a degree of uncertainty over the basis for accepting an innovation. Educational television must serve the learning situation. "Neither the techniques of television nor the techniques of instruction can alone produce a good televised program of education. Adaptations of both will be necessary, and will come, I am sure, as the two professions combine their thinking to implement

sound educational philosophy. From this merger will come a new and distinctive skill and discipline."⁷⁶

⁷⁶Benjamin C. Willis, "Schools and Educational Broadcasting," AERT Journal, XV (April, 1956), 8.

CHAPTER VI

DESCRIPTION OF PROJECTS (NON-EXPERIMENTAL)

For the most part, discussions in the foregoing chapters have been restricted to a theoretical viewpoint of television in education. At this point the emphasis changed to consideration of actual projects involving the use of in-school instructional television. In the previous pages of this study there was an implication that too little had been written on the means of realizing television's promising potential in education. This chapter attempted to examine some of the material which described practical applications of the medium for instructional purposes. In order to clear up any misunderstandings which may have arisen from previous critical statements about literature outlining how educational television was actually used, it was necessary to note that the lack was not in the quantity of writing, but in the quality of writing on this topic.

Forty-nine articles and four sections of books have been read to obtain a suitable selection of project-descriptions. Of this total, thirty-nine references have directly

or indirectly involved work at the elementary school level.

I. TOPICS TO BE CONSIDERED

The approach employed for this chapter consisted of selecting several project-descriptions and outlining the kind of information contained therein. Emphasis has been placed upon elementary school projects or the elementary phase of total-school projects. No effort was made to go back into publications dated prior to 1954 due to the great number of relatively recent reports. These descriptions were brief--much of the omitted detail was beyond the scope of this study or was covered in other chapters.

An organizational structure which would show a variety of projects in different countries was adopted for this chapter. Emphasis had been placed upon projects in the United States because of the abundance of published data in that area. Additional information was included on the nature of telecasting for elementary schools in Canada and Great Britain.

The content of most descriptions included such topics as scope of the project, procedures used, organizational

considerations, subjects presented, and, in a few instances, project purposes and derived benefits. Scope covered such items as number of pupils reached through instructional television, amount of telecasting hours, and the number of participating agencies. Procedures consisted primarily of methods of presentation. Personnel involved in various phases of the project, developing co-operation among participating agencies, and types of facilities were illustrative of the organizational considerations. The topics of subject areas presented, project purposes, and derived benefits are self-explanatory.

The descriptions to follow were selected for two reasons: (1) they contained salient points and/or (2) they received a considerable amount of recognition in the professional literature. This group of projects was by no means all-inclusive, but it did represent a sampling of the type of work being carried out at the elementary school level.

II. AMERICAN PROJECTS

Within this section, the projects have been organized according to the size of their scope. The extent of this

classification ranged from single school endeavors to national projects. Between these two extremes were included projects involving single-school systems, multi-school systems, and multi-state systems.

Single-School Project

In Liberty, Ohio, the E. J. Blott Elementary School used its own instructional programs over a closed-circuit system. Approximately twenty-five, ten-to-fifteen minute programs were produced each week. These programs covered such subject areas as science, health, French, reading, music, arithmetic, and speech improvement. All of these subjects were taught by specialists who were also scheduled to meet with the students in regular classrooms. This project indicated clearly the practical feasibility of in-school production of television programs for in-school instructional purposes.¹

¹H. M. Wilds, "Quiet Please! Telecasting," Ohio Schools, XL (March, 1962), 26-27.

Single-School System Projects

Most single-school system project descriptions were confined to general outlines of scope, subject areas, grade levels, and the nature of organization for televised instruction. This approach was particularly apparent in reports of work in Anaheim, Philadelphia, Dade County, Pittsburgh, and Oklahoma City.

The Anaheim, California, district began in September, 1961, to use its own district-wide, closed-circuit television network and facilities to provide televised teaching for all pupils in grades three to six. By February, 1964, 8,000 pupils in these grades were being exposed to educational telecasts as an integral part of their school program. Subject areas included social studies, science, and music for grades three to six; conversational Spanish for grades four to six; arithmetic enrichment for grade three; and a "lit telecast" for pupils in grade four. Daily viewing time varied from twenty-five minutes at the third-grade level to thirty-five minutes for pupils in grades four to six. This amount of time constituted approximately twelve per cent of the daily instructional time. All schools in Anaheim which

were using television followed the Redeployment Plan outlined by Stoddard.² In this plan pupils spent half of the day in large instructional groups, then engaged in small-group or individual activities during the other half of the day.³

Many articles have been written about the use of educational television in the schools of Philadelphia, Pennsylvania. The most noteworthy point appeared to be the fact that this city was the first one to use television for instructional puposes. Experimentation began in the fall of 1948 with eight programs in arithmetic, music, science, and art. Some indication of the expansion which has occurred since that time was evidenced in the fact that forty-eight weekly educational programs were being beamed to 181,000 pupils in 1961.⁴

²Alexander J. Stoddard, "Television as a Powerful Factor in Education," NASSP Bulletin, XLII (September, 1958), 35.

³Robert E. Shanks, "Closed-Circuit TV in Anaheim City Elementary School District," American School Board Journal, CXVIII (February, 1964), 35.

⁴Education Centre Library, Television in the Classroom: Part I (Toronto: Board of Education, 1961), 23.

The Dade County, Florida, system organized its elementary school classes on the basis of instruction in small groups for half a day and large groups for the other half-day. Television lessons were presented at the fifth and sixth-grade levels in history, Spanish, science, literature, and safety. Under the basic plan, the large elementary classes were taught by one teacher who was assisted by a teacher-aide. The pupils received a total of forty-two minutes of televised instruction daily. Time totalling forty-five minutes was provided for the large-group activities which preceeded and followed the telelessons. A modified plan, used in several schools, provided for the children to receive the telelesson in a large-group situation after which they returned to their regular classrooms for follow-up activities.⁵

The open-circuit facilities of a commercial station were utilized in Pittsburgh's educational television project. Elementary school children viewed the instructional telecasts

⁵Ibid, p.p. 49-51.

in groups of average classroom size (approximately thirty-five pupils). Teachers also viewed the telelessons, then presented their own follow-up instruction which carried the teaching process beyond the televised presentations. Elementary school instruction at the beginning of the project was available in grade five arithmetic, reading, social studies, and French. Figures in 1960-1961 did not specify elementary level offerings but reported that thirty-seven courses were being presented to 125,000 students in 437 schools.⁶

As part of the educational television project of the Oklahoma City and district schools, one half-hour each day was devoted to enrichment programs for use at the elementary school level. Again the transmission system was open-circuit. Presentations in music, art, folk dancing, safety, and Oklahoma history were so successful that they became an integral part of the Oklahoma City elementary school curriculum.⁷

⁶Ford Foundation, Teaching By Television. A Report From the Ford Foundation and the Fund for the Advancement of Education (New York: The Ford Foundation, 1961), p. 404.

⁷J. Chester Swanson and Melvin W. Barnes, "ETV in Oklahoma City," National Association of Educational Broadcasters Journal, XVII (January, 1958), 15-18+.

Due to the fact that the principal concern of this study was to examine educational television and elementary education on a somewhat pragmatic basis, specific organizational considerations featured in many projects were deemed pertinent. Such considerations were evident in reports of work in Hagerstown, Richmond, Detroit, St. Louis, Boston, and Schenectady.

The most extensive single school-system project was the educational television program carried out in Hagerstown. Each of the 16,500 students in the county's elementary and secondary schools received at least one period of televised instruction daily. Elementary school subjects included grade six science; grade five arithmetic; music, reading and art in grades four to six; and number experiences and art in grades one to three. A basic feature of the Hagerstown project was the emphasis placed upon close co-operation between the studio and classroom teachers. They worked together on the development of guide materials to be used in the classroom in conjunction with the telelessons. The classroom teacher played an essential role through the conducting of a ten-minute pre-telecast preparatory activity

and a fifteen-minute post-telecast follow-up activity. Studio teachers were completely freed from classroom duties in order to devote all their attention to the preparation and production of the television lessons.⁸

A number of significant characteristics of the Hagerstown project were noted by the Education Centre Library:

1. No other school system's educational television efforts were as highly subsidized. The Ford Foundation alone contributed grants totalling more than one million dollars.
2. Each pupil in every school in the system was exposed daily to televised instruction.
3. Despite the extensive scope of the project, its goals, operations, and results were highly similar to those of most other school systems utilizing television.⁹

The Richmond, Virginia, public school system utilized the facilities of one of the city's commercial stations to

⁸Elaine Exton, "Television at Work in the Schools," American School Board Journal, CXXXIV (June, 1957), 49.

⁹Education Centre Library, op. cit., p.p. 36-37.

present in-school instructional programs to more than 80,000 elementary school pupils in fifty-four counties and cities. A unique feature of this project was the special cost-sharing agreement entered into by the participating systems. The financial arrangement was based on a cost-sharing arrangement according to student enrollment and the number of lesson guides needed.¹⁰

Although no details were given on its elementary school offering, Detroit's educational television system had a number of interesting features. Expansion of this system showed a growth from thirteen half-hour programs in 1955 to sixty-eight weekly telecasts in 1961. An integral part of this system was its own educational television station. Forty-seven people were required to operate the project-- twenty-three were on-camera teachers while the rest were engaged in production, evaluation, and supervisory activities. For whatever period of time was necessary before and after the telelessons, classroom teachers explained lessons, handled questions, reviewed, tested, and presented new material. On-camera teachers were given one week for pre-

¹⁰Ibid, p. 23.

paration and presentation of their lessons. Close co-operation between studio and classroom teachers was encouraged through summer workshops and monthly meetings during the school year. Class size for the television lessons averaged 150 pupils. An experimental approach was employed in this project through the use of control classes, along with the classes which received part of their instruction over television.¹¹

The sharing of responsibility between the schools and a commercial station highlighted the work being carried on in St. Louis, Missouri. Educational programs were telecast for all grade levels and a number of these telecasts were kinescoped for later use at times more convenient to certain schools. Responsibility for televising was assigned to the station--the schools assumed responsibility for the planning, content, and utilization of the programs. Particularly noteworthy in St. Louis was the organization which operated the program. Due to the nature of the organizational structure it was examined in considerable detail at this point.

¹¹Ibid, p. 24.

Four basic committees were involved:

1. The Superintendents' Advisory Committee was composed of all school superintendents in the station's coverage area. It met twice a year to consider reports of operations and have an opportunity to question operating procedures.
2. The Executive Committee was an arm of the previous group. Five superintendent representatives and an Executive Secretary gave basic direction to the television work in the classrooms.
3. The Operations Committee was composed of six superintendent representatives who met regularly with the Executive Secretary and the Co-ordinating Group.
4. The Co-ordinating Group was actively involved in planning programs, integrating programs into the curriculum, approving production plans, and carrying out review and evaluation procedures.

In addition there were Content Area Planning Committees, composed of classroom teachers who developed the content and nature of the actual programs. At the elementary level these committees were functioning in the areas

of science, social studies, language arts, and arithmetic.^{12,13}

In the Boston, Massachusetts, project the reasons for using television at the elementary school level were significant. Early in the planning stage, the co-ordinating body decided that elementary classrooms would be especially suitable for televised instruction because they had flexible schedules, a wide variety of subject areas, and a great need for supplementary material. The programs were designed specifically to help the elementary teacher meet the problem of teaching adequately many different subjects. A series of thirty-minute programs was broadcast once-weekly over Boston's educational television station. Subject areas covered in this project were grade six physical science, grade five natural science, grade four social studies, grade three literature, grade two music and art, and a series of motivational field-trip programs at the primary level.¹⁴

The Schenectady School System engaged in a project

¹² Elaine Exton, op. cit., p. 50.

¹³ Ford Foundation, op. cit., p. 44.

¹⁴ Edward R. Kupperstein, "The Massachusetts School Television Story," National Association of Educational Broadcasters Journal, XVIII (May, 1959), 10.

which included open-circuit programs in elementary-level science and French. Programs were completely prepared by school system personnel under the direction of its audio-visual department. Meetings of classroom teachers, the television co-ordinator, television teachers, college officials, and school administrators were held to seek ways to evaluate and improve the effectiveness of the project and meet the needs of all participants. Questionnaires were also employed as an additional technique for evaluation of the program.¹⁵

Specific aspects of two school system projects were noteworthy in reports on educational television in Milwaukee and New York City.

The Milwaukee, Wisconsin, school system originally introduced television to its elementary schools as a resource for use in their classrooms. Telecasts were designed to follow closely the regular curriculum and provided a valuable aid to the single teacher in the self-contained classroom. Subject areas covered at the elementary school level were art, music, physical education, and science.

¹⁵Bernard F. Haake, "Schenectady Compiles a TV Package," School Executive, LXXV (November, 1955), 71-73.

Through these programs children were exposed to viewing more experiences outside the classroom, guest experts, and other learning situations that were previously very difficult to present. Special subject supervisors frequently did the television teaching which resulted in more than double their number of exposures to regular classroom teachers and their pupils.¹⁶ This was possible because circulation by television was much faster than personal visits to schools.

As of February, 1964, the Milwaukee public schools were offering telelessons in eleven curricular areas by open-circuit transmission over the city's two educational television stations. Most of the telecasting was done in the subject areas of art, music, physical education, and science in the elementary school. A total of 195,000 pupils received televised instruction in this project. It was also noted that 15,760 pupils in grades five and six would have been denied instruction in Spanish without the use of television.¹⁷

¹⁶Harold S. Vincent and Robert Suchy, "Milwaukee Uses ETV," NAEB Journal, XXI (May-June, 1962), 73-75.

¹⁷H. F. Schlaak, "Milwaukee's ETV Stations Serve the

One particular feature of the Milwaukee project--"Patterns in Arithmetic"--constituted an interesting description of a completely self-contained program of instruction for direct-teaching application in grades four to six. The "Patterns in Arithmetic" program began as an attempt to revise the elementary arithmetic curriculum. Biweekly, fifteen-minute filmed lessons were viewed by pupils and their teachers. A series of follow-up exercises was done for each of the television lessons. Classroom teachers were prepared for and assisted in the use of the telelessons through teachers' guidebooks for both the lessons, the follow-up exercises, and a series of half-hour televised in-service sessions. These in-service telecasts were scheduled approximately every three weeks in order to prepare for the next six televised arithmetic lessons. Again it should be emphasized that this series was not meant to be an enrichment resource--it was designed for direct classroom instruction.¹⁸

Community," American School Board Journal, CXXXIV (February, 1964), 31.

¹⁸J. Fred Weaver, "Patterns in Arithmetic," Arithmetic Teacher, X (April, 1963), 217.

Although the specific elementary subject areas were not noted in reports on the New York City project, the styles of utilization were outlined in an informative manner. Open-circuit facilities of a commercial station were employed in four ways:

1. Programs for enrichment or extra-class experience.
2. Team-teaching plans which integrated the work of studio and classroom teachers.
3. Programs designed to carry out the total teaching task.
4. Programs designed for direct teaching. Here the classroom teacher assisted, guided, and followed through after the television presentation.

During the 1958-1959 school term the Regents of the University of the State of New York leased the facilities of station WPIX for eight hours per day, five days per week to carry out this project.¹⁹

Three primary objectives were set out for New York City's Chelsea Closed-Circuit Television Project which began in April, 1957:

¹⁹Francis R. Almstead, "Leased Time 'Pays Off' for Educational Television," National Association of Educational Broadcasters Journal, XVIII (May, 1959), 12-15+.

1. Development of effective instructional television techniques requiring a minimum of staff and equipment.
2. Determining the effectiveness of teaching simplified English and Spanish as a second language.
3. Community improvement.

The in-school phase of the project consisted of an average of three hours of live programming and four hours of language film programming per week. Live programming included such subject areas as elementary science, music, speech improvement, health instruction, physical activities, and story-telling. Viewing time per class varied from a half-hour to two and three-quarter hours weekly, depending upon grade and achievement levels.²⁰

Multi-School Systems

A number of television projects went beyond the boundaries of a single school system and involved a number of systems and agencies working together on a co-operative basis. Such a project was carried out by Central Florida

²⁰Lawrence Creshkoff, "The Chelsea Closed-Circuit Television Project," National Association of Educational Broadcasters Journal, XVIII (December, 1958), 6-10+.

Educational Television, Incorporated. This eight-county corporation started from a Ford Foundation grant and received further support from military bases in the area, government, private business, the Florida Education Association, parent-teacher groups, civic organizations, and numerous legislators. By the fall of 1963, six in-school programs were being received by 80,807 pupils. Two of these six programs provided instruction in elementary school science. In this project the teachers did all of the preparation work, such as the production of visual devices, as well as the actual television instruction. Eleven people were required to staff the corporation.²¹

Multi-State Systems

Undoubtedly, the Midwest Project on Airborne Television Instruction (MPATI) ranked as one of the most spectacular of all educational television projects ever undertaken. The extent of co-operative action involved was most apparent in November, 1962, when a corporation representing

²¹Barbara Johnson, "80,000 pupils View ETV in Central Florida," National Association of Educational Broadcasters Journal, XXII (September-October, 1963), 13-15.

1,200 schools and colleges in six states took over operation of the airborne project. MPATI's scope was illustrated graphically by data showing geographical area covered and number of students reached. The member schools and colleges fell within a circle which covered nearly all of Indiana, and parts of Illinois, Kentucky, Ohio, Michigan, and Wisconsin. Approximately 144,000 square miles were included in the coverage area. During the 1961-1962 school year approximately 2,300 schools and colleges and one million students received television lessons through this project.

The unique method of open-circuit transmission was carried out through the use of a DC-6 aircraft which carried two ultra-high frequency transmitters. Each school day five hours of videotaped instructional material was transmitted from an altitude of 23,000 feet over Montpelier, Indiana. Another similarly-equipped plane stood by on the ground in case of emergency.

In the two-year period from the fall of 1960 to the fall of 1962, 2,200 lessons were videotaped. The tremendous scope of this project was attained only through the co-operation of its members and an effective utilization of their

resources. This reference mentioned two significant facts about MPATI's development which should be noted here:

.....first, without the co-operative system which has involved the six-state area, thousands of schools, six state superintendents, and dozens of colleges and universities, Airborne as an experimental project could not have succeeded and Airborne as a continuing program could not have developed. Second, the size of MPATI's coverage area, the number of schools and students served, has made possible the attainment of the quality, quantity, and economy of the system.²²

Another multi-state system project was operated on a co-operative, self-supporting, regional basis in the New England states; New York, Pennsylvania, New Jersey, Delaware, Maryland, and the District of Columbia. Ten educational television stations were affiliated with the Eastern Educational Network. Also involved were eleven state departments of education, three production centres, many schools and colleges, the National Educational Television and Radio Centre, and the Canadian Broadcasting Corporation. One thousand hours of "live" instructional programming were produced in 1962. At the elementary school level offerings were

²²Erling Jorgensen, "Midwest Project on Airborne Television Instruction," National Association of Educational Broadcasters Journal, XXII (March-April, 1963), 22.

presented in fifth-grade natural science, sixth-grade physical science, French for grades four to six, second-grade phonics, and third-grade music and science.²³

National Projects

Although the National Program in the Use of Television in the Public Schools consisted of a series of projects involving both single and multi-school systems, its nationwide significance was felt to be sufficient justification to accord it a separate classification. The National Program was undertaken primarily to determine whether it was feasible to teach large classes of students with fewer teachers and fewer classrooms than might otherwise be required. To achieve this end, television was to serve as a means of instruction and a major resource. In its fourth year of operation (1961) approximately 200,000 students in 800 schools in fifteen municipal areas and eight regions were participating. Elementary schools taking part in the project were organized on the basis of the Stoddard Plan.²⁴ Pupils spent

²³Michael Ambrosino, "Eastern Educational Network," National Association of Educational Broadcasters Journal, XXII (March-April, 1963), 24-25.

²⁴Stoddard, op. cit., p. 35.

half the day in a class of twenty-five or less for instruction in reading, writing, and arithmetic from a single teacher. The other half of the day was spent in groups of 75 to 150, with several teachers, viewing instruction in social studies, science, physical education, health, and other subjects. It was in the large-group situation that elementary pupils received part of their instruction over television.²⁵

III. CANADIAN PROJECTS

Educational television in Canada has been carried out on national, provincial, and local bases. The government operated system, the Canadian Broadcasting Corporation, began the first series of school telecasts in the spring of 1954 in co-operation with the National Advisory Council on School Broadcasting, a group composed of education and broadcasting representatives from all parts of Canada. These telecasts were designed for both home and in-school viewing.

²⁵Ford Foundation, op. cit., p.p. 58-59.

National Projects

Elementary level programs have been a part of all Canadian Broadcasting Corporation projects. The first series in November and December of 1954 included social studies, health, art, and literature for grades five and six. These programs were broadcast over a national network of sixteen stations.

In April and May of 1956 another series was presented. Among the subject areas this time were language, science, and social studies for grades two to four, and social studies, geography, and science for grades four to six. The programs were carried over a network of twenty-nine stations.

Although no national school telecasting was done in 1958 or 1959, it resumed in 1960 and has been growing steadily in the scope and quality of its elementary school offerings.

Provincial Projects

Manitoba was the first province to initiate school telecasts on a provincial level. The first project was started in 1958 and, with the exception of 1960, programs have been carried on a regular basis since then. However no

notable efforts were made at the elementary school level in that province.

The emergency nature of a polio epidemic resulted in school broadcasts in Newfoundland in September, 1959. All school levels were served by the open-circuit facilities of a commercial station for a three-week period.

In 1960 the four western provinces of British Columbia, Alberta, Saskatchewan, and Manitoba undertook two short series on a co-operative basis. One of the series dealt with the history of mathematics for grades five to eight.

Local Projects

While several cities have conducted projects for the benefit of their local school systems, few of these have had any emphasis on offerings for elementary schools.

The first open-circuit venture on a local basis was carried out in Halifax in January, 1958. Three programs were presented in each of the subject areas of grade four science and grade six geography.

Toronto's Board of Education presented several telecasts in January to March of 1960. Subject areas included art for grades six to eight and science for grades five to

eight.

Educational television in the United States has stressed the direct-teaching application of the medium as was evidenced in the previous section of this study. In Canada, the telecasts have been designed to enrich the school's curriculum and supplement the teacher's capacity.²⁶

IV. EDUCATIONAL TELEVISION IN GREAT BRITAIN

Brief mention of the situation in Great Britain was included at this point in the study because it represented utilization of educational television very much in contrast to the American and Canadian experiences. Much of the cause for the unique situation in Great Britain could be found in the local nature of education and the national character of broadcasting. Educational telecasting was carried out by the two national systems--the government-operated British Broadcasting Corporation and the privately-operated Independent Television Authority.

²⁶Richard S. Lambert, School Broadcasting in Canada (Toronto: University of Toronto Press, 1963), p. 203.

The first educational telecasting was carried out exclusively at the secondary school level. However, growing realization of the potential value of the medium for elementary school instruction resulted in programs for this level by both government and private broadcasters in 1959.

Programs designed for enrichment were the only kind produced in Great Britain. Educational television followed closely the precedent of educational radio by not teaching, but supplementing the work of the teacher. The problem of centralized program production for autonomous, de-centralized school systems was overcome by emphasizing self-contained enrichment programs which were to be selected on an individual basis by local school systems according to their particular requirements.²⁷

Television for enrichment was as strongly emphasized in Great Britain as television for direct teaching was emphasized in the United States. In summing up its review of the British situation, the Education Centre Library report concluded:

²⁷Henry R. Cassirer, Television Teaching Today (Paris: UNESCO, 1960), p. 243.

What the future holds for ETV in Great Britain is, of course, impossible to predict accurately, but a shrewd guess would see some programs of an admittedly "direct-teaching" type to meet changing requirements while "enrichment" programming maintains or even improves its present status. At the same time, it is conceivable that the weight of criticism in the United States will force a more sophisticated, less primitive approach to ETV than has been evident to date. Perhaps in time each nation, in using pages from each other's notebook, will give valid emphasis to both approaches.²⁸

V. IMPLICATIONS FOR THE ELEMENTARY SCHOOL

Examination of project descriptions suggested again a consideration of the relevant points in terms of their instructional and administrative implications. Once more the emphasis appeared to fall upon administrative considerations. Few of the selected project descriptions were involved in matters pertaining directly to instruction--the majority tends to relate, in general terms, what was done and how the mechanics of the project were handled. The major instructional points to be dealt with were the types of curricular areas suitable for televised instruction and the

²⁸ Education Centre Library, Television in the Classroom: Part II (Toronto: Board of Education, 1962), p. 44.

nature of the learning experiences which television could provide. Included under administrative considerations were purposes for using television, initiation problems, organizational factors (facilities, as well as teaching and pupil personnel), extent of usage, utilization of personnel, coordination factors, evaluation procedures, and size of projects.

Curricular Considerations

It was evident that all elementary school curriculum areas had been explored as possible content for instructional television. With only a few exceptions, each project description has indicated which subjects were presented over television. Unfortunately most of the descriptions have not indicated what aspects of the various subject fields were used. Clearly certain features of a subject field were more suitable than others for televised instruction--more information on such subject features would greatly increase the value of the professional literature.

Another aspect of curricular offerings which had been influenced by educational television was the provision of

instruction in subjects which otherwise would not have been possible due to a lack of sufficient enrollment and/or qualified teachers. An excellent example of this point was the presentation of televised instruction in Spanish in the Milwaukee schools.²⁹ Somewhat related to this idea was the use of television to supplement instruction in certain subject fields where there was a shortage of qualified teachers or a lack of instructional resources. For example, the use of television could mean a much wider distribution of visual aids, such as slides and films, which might not reach a large number of schools if the usual methods of circulating these materials were employed.

Provision of Unique Learning Experiences

The Milwaukee schools again served as an excellent illustration of the provision of special learning experiences through the medium of television.³⁰ In that system the mass-circulation feature of television was used to present such

²⁹Schlaak, op. cit., p. 31.

³⁰Vincent and Suchy, op. cit., p.p. 73-75.

items as special resource people and filmed "field-trip" visits to a variety of areas. In situations where only one presentation was possible, such as the visit of an outstanding scientist or prominent politician, the value of television was obvious. One presentation before the cameras could result in an almost limitless number of presentations if a recording device were used. Even a single "live" presentation could be exposed to a far greater number of people than would be possible if television were not utilized.

Purposes For Using Television

From an administrative standpoint it appeared that a most vital consideration was the purpose for using televised instruction. Previous discussions in this study have dealt with the question of television for direct-teaching versus television for enrichment. It was evident from the project descriptions that both purposes have been served in the utilization of television at the elementary school level in various countries. However, it was also obvious that most applications of the medium in the elementary school have been to supplement the work of the regular classroom teacher. A

somewhat different approach in terms of the reasons for using television at this level was found in Boston.³¹ Here the very nature of the elementary school was deemed a primary influence in the decision to experiment with educational television. Such inherent factors as great flexibility in scheduling and a total range of subjects were basic to the selection of elementary classrooms for early use of the medium.

Initiation Problems

The importance of proper initiation for any successful educational television project has been underscored many times. Generally there has been a great need for co-operation among a variety of both professional and non-professional groups. The term "professional" was used in this sense to denote those who were directly involved in educational activity as a vocation. Initiation of the Central Florida Network required the enthusiastic efforts of educational, governmental, and business interests.³² In addition, an adequate amount of financial backing has also been one of

³¹Kupperstein, op. cit., p. 10.

³²Johnson, op. cit., p.p. 13-15.

the initial difficulties confronting most educational television projects. Such organizations as the Ford Foundation have made invaluable contributions toward helping to overcome this formidable financial obstacle. Through endeavors such as the National Program in the Use of Television in the Public Schools, the Ford Foundation has provided necessary dollars to a large number of the major educational television projects in the United States.³³

Organizational Factors

Success in any project resulted only from effective organizational procedures. The undertaking of a program in educational television required careful organizational work in the areas of both physical and human resources. Included in the category of physical resources were such items as space and equipment--teacher and pupil personnel were the major constituents of the human resources category. More specifically, there was need for a modification of the

³³Ford Foundation, The National Program in the Use of Television in the Public Schools (New York: Ford Foundation, 1961).

conventional plan of classroom organization for instruction. The Stoddard Plan has been previously outlined as one typical example.³⁴ Efficient division of labor appeared to be another vital factor in the successful projects. Clear-cut procedures were established for the sharing of instructional responsibility between studio and classroom teachers, preparation of materials and lessons, and supervisory functions.³⁵ Clear role-definitions were also of primary importance in effecting a smoothly co-ordinated operation.³⁶ A functional organizational structure was evidently required to encourage adequate co-ordination among the various areas participating in any large-scale project. The St. Louis model was indicative of this kind of organizational body.^{37,38}

Extent of Usage

³⁴Shanks, op. cit., p. 35.

³⁵Education Centre Library, op. cit., p. 24.

³⁶Exton, op. cit., p. 49.

³⁷Ibid, p. 50.

³⁸Ford Foundation, op. cit., p. 404.

The size of the role which educational television played in any instructional program varied widely. Decisions on this problem seemed to be governed largely by the basic factors of supply and demand. Supply considerations included availability of broadcast facilities, number of competent personnel for television teaching, and size of the student audience. Demand considerations again were closely related to the supply of teacher and student personnel, adequacy of the current school offerings, and other factors relevant to improving the quality of the instructional program. The extent of usage ranged from Boston's³⁹ limited application of once-weekly to the daily exposure in Anaheim⁴⁰ and Hagerstown.⁴¹

Utilization of Personnel

Participation in educational television required major changes in the usual procedures for assigning personnel

³⁹Kupperstein, op. cit., p. 10.

⁴⁰Shanks, op. cit., p. 35.

⁴¹Exton, op. cit., p. 49.

to instructional tasks. Increasing importance was placed upon the preparation phase of a lesson, use of learning materials, and visual factors in lesson-presentation. A more specialized approach was required to maximize the effectiveness of all facets of the instructional process. Performance of numerous non-teaching tasks required the skills of experienced and capable teachers--an excellent illustration of the change in viewpoint necessitated by the new medium for instruction. The problems of selection for and allocation to these highly-specialized positions created a new job for personnel administration. An urgent requirement existed for close co-operation between television teachers and classroom teachers for single lesson presentations. Frequently this demand for co-operation was complicated by the need for additional problems raised by the broadcasting personnel--many of whom had no formal training in the use of television for education. Part-time or full-time assignment to television work was one more topic requiring careful decision-making by administration. The foregoing considerations were indicative of the type of flexibility and change occasioned in the thinking of school authorities by

educational television.

Co-ordination Factors

Greater co-ordination among interests outside the immediate scope of education has been an important by-product of educational television. The scope and complexity of the projects have contributed to the need for wider participation by these "outside groups." In most cases the extent of required co-operation has been closely tied to the size of the project--obviously an undertaking like MPATI was going to affect many groups in many areas. However, even limited projects have frequently required a larger degree of co-ordination than would be the case in most educational endeavors. Commercial television stations represented the largest, single outside element. They have been widely used as the only means for transmitting educational offerings. Commercial stations have not only provided broadcast facilities, but have also supplied skilled personnel and invaluable technical assistance in the preparation and presentation of telecasts. Government agencies at all levels, business, voluntary and service organizations, and other groups too numerous to mention have been largely responsible for the

provision of such necessities as financial support, resource people, and materials for instruction. The contributions of outside interests have taken so many forms that this situation has placed a new challenge before educators--a challenge to direct and guide successfully a vast multiplicity of factors toward the single objective of better education for elementary school children.

Evaluation Procedures

Evaluation ranked as a primary function of the administrative process. The nature of evaluation procedures in many project descriptions represented a major weakness in the practical application of educational television. In too many cases the evaluation step was either ignored or treated as an after-thought. Many of the methods labelled as evaluation have consisted of surveys of opinion. Any effective evaluation should be based, where possible, upon objective research evidence, to provide the most accurate indication of the actual results of a project. Perhaps the very rapid growth of educational television or the impressive potential of the medium have accounted for the frequent neglect of

careful evaluation. Certainly this weakness has reduced noticeably the acceptance of many claims for television's value as an efficient means for instruction.

Size of Project

A noteworthy feature of the literature describing the actual uses of educational television was the varied size or extent of these projects. They have been undertaken on single-school, single-school system, and multi-school system, and national bases. As suggested previously, the complexity of the project generally increased with the size. However, increases in size could also bring about many of the advantages that arise from large-scale enterprises--more specialized division of labor, wide distribution, and better cost-sharing arrangements were illustrative. It was evident that the use of television for instruction was feasible on almost any scale. Success in any project will be determined greatly by clear objectives attuned accurately to the needs of the individual situation. Careful planning in terms of realistic expectations was essential in both small-scale and large-scale projects.

VI. CONCLUDING STATEMENT

Only brief details of the projects selected for this chapter have been included. Many books dealing with educational television go into a more elaborate description, therefore, it was felt unnecessary to repeat much of the information here. This chapter meant to present only a sampling of some typical projects which have been actually carried out. The selective approach has been applied due to the high degree of similarity among several projects.

More information on theoretical considerations as well as practical applications would have strengthened many of the references dealing with the use of educational television at the elementary school level. Few of the references dealt in depth with the problems confronted, the advantages and disadvantages, and other factors relevant to setting up and operating a successful project. Most descriptions left the distinct impression that educational television was eagerly accepted, created few difficulties, and produced outstanding results from the expenditure of hard, but happy efforts.

It is possible that examination of actual reports published by users of educational television would have produced more depth and enabled a better assessment. Omission of original documents has been noted previously as a limitation of this study. However, there would appear to be considerable validity in the statement that most parties interested in educational television gain much of their information from the professional literature. Thus it seemed fair to state that the lack of depth in most project descriptions was a serious weakness in the professional literature.

CHAPTER VII

DESCRIPTION OF PROJECTS (EXPERIMENTAL)

In addition to the type of project described in the previous chapter, there was an extensive amount of "experimental" work undertaken in the field of educational television. The term "experimental" has been applied to those projects which were set up on the basis of a definite research design, that is, some provisions were made to control the conditions surrounding the project in an effort to assess objectively some particular aspect of television's use in education.

The purpose of this chapter was to give an indication of the nature and extent of scientific investigation into educational television at the elementary school level. No attempt was made to describe all of the studies that would fall within the scope of this topic. Rather, a selective approach was again used to illustrate some of the more significant features of the experimentation. The principal focus in the chapter was one of description--evaluation and other comments relative to the state of research in educational television will be discussed in the following chapter devoted exclusively to considerations in the research area. Most of the descriptions were for elementary school projects, but a few of the more general studies were included due to their unique nature or their

particular relevance to the elementary school level.

Of the fifty-eight articles examined for this topic, fifty-one references dealt with the elementary school.

I. TOPICS TO BE CONSIDERED

A variety of subject areas and a number of different purposes were covered in the group of studies selected for this chapter. The largest number of experiments was conducted to determine the effectiveness of televised instruction compared to the conventional classroom means. Other topics investigated included specific facets of instructional methods, operational considerations, teacher-student attitudes toward educational television, distribution of educational television materials, inter-media comparisons, and descriptive investigations.

The importance of several vital implications for elementary education was again recognized and further consideration of these topics completed the content of this chapter.

II. DESCRIPTION OF STUDIES

The various descriptions were brief because of the high degree of similarity among the purposes and procedures of the selected projects. In the majority of cases, the prime objective has been to compare two methods of

instruction in a specific subject field or fields--one method has involved some amount of television teaching, the other method has involved the conventional type of classroom teaching. Evaluation was based upon achievement of the experimental group (usually those pupils receiving all or part of their instruction by television) as compared with the achievement of the control group (usually those pupils receiving their instruction in the conventional manner). Some modifications of this typical format have been made, but few of the changes were major. The descriptions that follow will contain only the basic information necessary to indicate the purpose of the experiment, as well as any unique features that vary from the usual pattern. Also the projects selected have been carried out in relatively recent years because most of these studies have had research designs superior to those of the earlier investigations.

Studies Conducted to Investigate the Effectiveness of Televised Instruction

Typical of many studies undertaken to determine the effectiveness of television instruction in a specific subject area was Carner's attempt to assess the teaching of reading by television. Experimental and control groups were set up at both the fourth and sixth grade levels for

instruction over a closed-circuit system. Although not statistically significant, the results in reading favored the television or experimental group.¹

Two purposes were established for a study by Jacobs and Bollenbacher: (1) to determine the effectiveness of televised instruction in the subject-area of science at the sixth-grade level in comparison with regular classroom instruction and (2) to determine whether there is any uniformity of effectiveness between these teaching methods from one ability level to another. The nature of the latter purpose made this study noteworthy. Investigation of the first purpose revealed no statistically significant differences. For the second purpose, the television group's averages excelled the control group's averages at the "high" and "average" levels, while the control group was superior at the "low" level. The high, low, and average descriptions referred to the group's ability ratings.²

A Canadian experiment, conducted by Armstrong,

¹Richard L. Carner, "Teaching Reading Through Closed-Circuit Television in the Elementary School," Audio-Visual Communication Review, Vol. 8, No. 3, 157-58.

²James N. Jacobs and Joan K. Bollenbacher, "An Experimental Study of the Effectiveness of Television Versus Classroom Instruction in Sixth-Grade Science in the Cincinnati Public Schools, 1956-1957," Journal of Educational Research, LII (January, 1959), 184-89.

adopted the typical research design in attempting to compare the effectiveness of teaching work-study skills by television with conventional instruction in this area. Pupils in grades five and six were the subjects for this study. Results indicated no statistically significant differences in achievement between the experimental and control groups.³

Basic curriculum areas in the elementary school were not the only ones investigated. The subject field of guidance was the object of a study by Lemke to determine television's effectiveness in imparting guidance information to sixth-grade pupils and the effects of guidance instruction on the social adjustment of the pupils. Three groups were used--for the "television group" all information was presented by television--no follow-up or preparatory activities were conducted; the "teacher-led group" was given the objectives and summary of the television lessons and they were also encouraged to use their own initiative, consult additional resources, and other extra activities; the control group received no organized or systematic information. Results showed statistically significant differences in achievement favoring the

³Robert D. Armstrong, "Teaching Work-Study Skills by Television," Alberta Journal of Educational Research, VII (March, 1961), 12-27.

experimental groups--gains in information were related to the instruction with television instruction apparently superior to conventional teaching. Both experimental groups showed statistically significant gains in social adjustment.⁴

A few large American school systems conducted experimental studies into television's instructional effectiveness. An extensive project was undertaken in the Milwaukee, Wisconsin, school system. Subjects in which television was used included an integrated program of science, health, and safety at the elementary level. In the elementary schools, the basic structure of the self-contained classroom was maintained, but six classroom teachers in each participating school combined their classes for thirty minutes of daily televised instruction.⁵ In 1961 a final report on this experiment was released. In very general terms, it indicated that no statistically significant differences occurred in learning when television and conventional instruction were compared. Also most people involved in the project held a favorable

⁴Olga M. Lemke, "Final Research Report on the Effectiveness of Television in Teaching Guidance at the Sixth-Grade Level," Audio-Visual Communication Review, Vol. 10, No. 6, A-133.

⁵"The Milwaukee Experiment in Instructional Television," National Association of Educational Broadcasters Research Fact Sheets, Series 1, Number 84.

attitude toward educational television.⁶

Another major school system project was carried out in Norfolk, Virginia. This experiment included television instruction in general science at both the fifth and sixth grade levels. Television was used as the main medium of instruction for large groups of approximately 125 pupils. No statistically significant differences were found between the achievement of the experimental and control groups.⁷

Several studies which investigated achievement also revealed information in other valuable areas. Sixth-grade children in Cincinnati, Ohio, were the subjects of an experiment to compare the achievement of pupils in science classes where television was used with the achievement of pupils in conventionally-taught classes. It also attempted to determine whether the effectiveness of the two instructional methods varied with the ability of the pupil and to determine the pupils' attitude toward television. A full year of televised instruction in science was offered. The effectiveness of the television

⁶"The Milwaukee Experiment in Instructional Television: Evaluation Report," National Association of Educational Broadcasters Research Fact Sheets, Series 1, Number 84.

⁷"The Norfolk City Experiment in Instructional Television," National Association of Educational Broadcasters Research Fact Sheets, Series 1, Number 80.

and non-television methods of instruction varied from one ability-level to another. The conventional method produced statistically significant higher levels of achievement than the television method for pupils who were average or below-average in ability. The difference was not statistically significant for the above-average pupils. A favorable attitude was expressed toward televised instruction. Evidence indicated the preference was higher for pupils who were average or below-average. Preference for televised instruction was negatively related to higher achievement resulting from the use of television.⁸

The effect of televised instruction upon a group of related subject areas has been investigated. A report from the Philadelphia, Pennsylvania, educational television project presented results from a program of instruction by television in sixth-grade language arts. There was a slight superiority for television classes in three of five achievement tests--English-usage, reading, and locating information. Control classes were slightly ahead in spelling and handwriting. None of the reported

⁸James N. Jacobs and John Grate, "Teaching Sixth-Grade Science by Television," Elementary School Journal, LXIII (November, 1962), 96-103.

differences was statistically significant.⁹

Studies Conducted to Investigate Specific Facets of Instructional Methods

Certain aspects of classroom practice on language achievement were assessed in a study involving French instruction for fifth-grade children. Over a two-year period, the fluency of the teacher, the transfer effect of the teacher-training programs, and the kind of practice used were investigated. Differences in the fluency of the teachers, when combined with televised instruction in French by the aural-oral method, did not yield significant differences in achievement. Total fluency of the children was affected independently at a statistically significant level by the kind of practice and degree of teacher fluency. The differences favored the more fluent teachers and teacher-directed practice. The teacher-training programs did not produce a statistically significant transfer effect on the pupils' fluency.¹⁰

⁹"Supplementary Report of the National Experiment of Television Teaching in Large Classes," National Association of Educational Broadcasters Research Fact Sheets, Series 1, Number 100.

¹⁰Ralph Garry and Edna A. Mauriello, "Summary of Research on 'Parlous Francais': Year Two," Audio-Visual Communication Review, Vol. 10, No. 3, A-130.

Classroom procedures were again investigated--this time in an experiment carried out in connection with the New York State Regents Educational Television Project. This study attempted to examine and evaluate the classroom procedures used by fourth-grade teachers who received their science from televised instruction. As one would expect, some form of pre-telecast and post-telecast activity conducted by the classroom teacher produced better results than those obtained when the telecast was used as the sole means of instruction. In pre-telecast activities, teachers generally followed the television manual or guidebook and motivated the children. During the actual telecast most teachers did little, although a few enumerated main points on the board. During the post-telecast activities the teacher related the lesson to scientific principles and the period was one of work and activity.¹¹

The National Program in the Use of Television in the Public Schools initiated several studies. Utilization of the Stoddard Plan in the Florida West Coast Project was carried out for fifth and sixth-grade social studies and related subjects. In the elementary schools composing the experimental group, each child spent ninety minutes in a

¹¹Frederick Shaw, "A Survey of Teacher Use of Science 4 on Television," Audio-Visual Communication Review, Vol. 10, No. 2, 128.

large-class situation with his time divided equally between watching two television lessons and working under the direction of the classroom teacher. Then the large group was divided into two or three sections for two, forty-five minute periods of work, during which time there was instruction in physical education, art, music, and science. For the rest of the day, each grade-level was assigned to skills classrooms, twenty-five children to each class, for instruction in reading, arithmetic, and language arts. The experimental results showed no statistically significant differences between the achievement of children in the above plan and those who received their instruction in the conventional manner.¹²

Factors extraneous to the actual instructional situation attracted a certain amount of attention. Kraft compared the effectiveness of various methods in the use of instructional television for teaching natural science to fifth-grade pupils as determined by gains in information and vocabulary achieved under the different experimental conditions. Factors examined for their effects on

¹²Thomas H. Rothchild and Leroy R. Lastinger, "The Florida West Coast Project for the Utilization of Television in Large-Class Teaching: First-Year Report, July, 1959 to June, 1960," National Association of Educational Broadcasters Research Fact Sheets, Series 1, Number 90.

science achievement were preparatory training of teachers in science and television workshops as compared to no training, use of television programs to initiate or terminate classroom instruction on a topic, use by teachers of a study guide in conjunction with the television series, and participation by the pupils through individual projects of special interest or through common class assignments. The control group watched the telelessons, but did not experience any of the other experimental conditions. Significant results indicated that all combinations of the experimental variations proved more effective than television alone as far as achievement was concerned; those classes whose classroom work preceded the television programs attained higher gains in science information when given a common assignment--those classes who did their classroom work after the television programs made greater gains by individual assignments; the more able groups tended to learn more science than the less able groups in both experimental and control classes.¹³

In the final study to be considered under this topic, the purpose was to compare the effectiveness of

¹³Mary E. Kraft, "A Study of Information and Vocabulary Achievement from the Teaching of Natural Science by Television in the Fifth Grade," Dissertation Abstracts, XXII (October, 1961), 1097.

instruction by television under conditions conducive to higher pupil involvement and under other conditions conducive to lower pupil involvement. This attempt represented a worthwhile effort to probe into some basic features of the instructional situation. The effectiveness of the two methods was judged on the basis of pupil achievement in fifth-grade science. Additional comparisons were made on the basis of pupils' attitudes toward televised instruction before and after the experimental period. Techniques used for gaining pupil involvement included direct questioning, referring to supplementary reading references, and performing experiments. There were no statistically significant differences in the measured achievement. Statistically significant differences occurred in the following areas: the "high-involvement group" tended to dislike studying science by television to a greater extent after the experiment than before the experiment, the "high-involvement group" found it harder to pay close attention to the television lessons, and the "high-involvement group" did not wish to take science by television in the next year. Attitudes toward instruction were not consistent with achievement.¹⁴

¹⁴James N. Jacobs, John Grate, and Vlliance M. Downing, "Do Methods Make a Difference in Educational Television?," Elementary School Journal, LXIII (February, 1963), 248-54.

Studies Conducted to Investigate Operational Considerations

Schools in Wichita, Kansas, were used for a study to determine what economics could result from using the Stoddard Plan for educational television in an elementary school, to identify problems arising from the required re-organization, and to find out what happens in the instructional situation. Costs were compared, notes were kept of all discussions dealing with problems, the California Achievement Test was used to test achievement, and questionnaires were used for opinions and attitudes. Excluding the cost of television programs, the re-organization resulted in a personnel saving of twenty percent, eighteen percent savings in classroom space and a five-dollar per pupil saving in furniture requirements. The net savings of re-organization appeared to depend upon enrollment, number of schools involved, type of television equipment, and the necessary remodelling required for larger groups. Problems included the need for inflexible time blocks, finding personnel for special room activities (physical education, music, and art), and correlating subject content assigned by more than one teacher. The teachers of the large groups believed the work-load was much heavier than that of the self-contained classroom. The basic reason teachers felt the program would help reduce their work-load was through the use of teacher-

aides and assigning special subject areas to special teachers. Achievement comparisons with a control school revealed no statistically significant differences.¹⁵

From a description of the third year of the Dade County Educational Television project, the following pertinent factors were noted:

1. One of the objectives of the project was to determine whether elementary teachers, specially-trained in skill-subject teaching, would do a more effective job if permitted to devote their full time to this teaching task.
2. Elementary school pupils received a daily telelesson in American history and a varied schedule of other presentations designed to assist direct teaching in Spanish, art, music, science, literature, and safety. Viewing groups varied in size from 150 to 200.
3. In the elementary schools, the large classes were taught by one teacher assisted by a teacher-aide. They received about forty-five minutes of televised instruction daily.
4. None of the above experimental variations produced statistically significant differences in achievement

¹⁵Benny W. Wolfe, "An Experiment in Elementary School Re-organization for Educational Television in Wichita, Kansas," Dissertation Abstracts, XXI (March, 1961), 2570.

when compared with control groups taught by conventional methods.¹⁶

Studies Conducted to Investigate Teacher and Student Attitudes Toward Educational Television

One study was directed to assessing teacher reactions toward the medium. Jacobson and Westley conducted a study to determine the attitude of teachers toward instructional television. After factor analysis, ten unique factors of the expressed attitudes resulted. No general factor was found. On the whole the teachers' attitudes were highly favorable toward instructional television and rejected consistently the idea that the television teacher represented a threat to the classroom teacher.¹⁷

The Chicago educational television series, "Patterns in Arithmetic" was outlined in the previous chapter, but one specific experimental feature of the series seemed noteworthy. As a result of this program, Kaprelian

¹⁶Joe Hall, "Educational Television Project, Third Year, 1959-1960," National Association of Educational Broadcasters Research Fact Sheets, Series 1, Number 103.

¹⁷Bruce H. Westley and Harvey K. Jacobson, "Dimensions of Teachers' Attitudes Toward Instructional Television," Audio-Visual Communication Review, Vol. 10, No. 3, 179-85.

carried out a study to determine the attitudes and reactions of grade four pupils toward televised instruction in arithmetic. Evidence gathered from the questionnaire suggested that children reacted favorably to the method, had a more favorable attitude toward the subject, felt they were helped in their arithmetic achievement, and indicated that they required more help from the teacher when the subject was presented over television than they required from the conventional approach. No statistical analysis of the data was made.¹⁸

Another experiment probing student attitudes toward a subject produced some interesting findings. The effect of televised instruction on attitudes toward reading was investigated at the fifth and sixth grade levels. Comparisons were also made with the pupils' achievement during the previous school year. Television lessons were supplemented by regular classroom instruction. Superior pupils made statistically significant smaller gains from televised instruction--achievement for average pupils remained about the same--below-average pupils made statistically significant greater gains from televised instruction. There was evidence of a statistically significant positive change

¹⁸George Kaprelian, "Attitudes Toward a Television Program--Patterns in Arithmetic," Arithmetic Teacher, VIII (December, 1961), 408-12.

in attitude toward reading following the television instruction by those pupils who initially showed a negative attitude. Superior readers who received all formal reading instruction by television achieved as well as those whose television instruction was supplemented by regular classroom work.¹⁹

Further experimentation continued in the area of student reactions to specific subjects. The reaction of fifth and sixth grade children to foreign language instruction was studied by Moskowitz and Amidon. One experimental group received instruction in French by television and in Spanish by the conventional method; the second experimental group received televised instruction in French. The control group received no foreign language instruction. Questionnaire results indicated that the "two-language group" expressed more positive attitudes toward foreign language than either the "one-language group" or the control group, and the control group revealed more positive attitudes toward foreign language than those who received televised instruction in only one language.²⁰

¹⁹Richard L. Carner, "An Evaluation of Teaching Reading to Elementary Pupils Through Closed-Circuit Television," Dissertation Abstracts, XXIII (July, 1961), 160.

²⁰Gertrude Moskowitz and Edmund J. Amidon, "TV FLES Versus Live FLES," Modern Language Journal, XLVI (May, 1961), 213-19.

Effects of attitude upon outcomes other than immediate factual recall were investigated. Amirian carried out two studies involved with the retention of science material and the attitude toward the subject of science as a result of televised instruction. Fifth-grade children were used as the subjects for this investigation. The initial measurement indicated no statistically significant changes either in achievement, or attitude.²¹ In the second phase of this project, the gains in science information and vocabulary were retained, however, there were no statistically significant differences in retention between experimental and control groups or in attitude and interest changes.²²

Studies Conducted to Investigate the Distribution of Educational Television Materials

With the growth in quantity of educational television materials, the desirability of wider distribution

²¹Gerald T. Amirian, "The Retention by Elementary School Children of Natural Science Material Taught by Television," Audio-Visual Communication Review, Vol. 10, No. 6, A-123.

²²Gerald T. Amirian, "The Retention by Elementary School Children of Natural Science Material and of Science Attitude and Interest Changes Following a Program of Science Teaching by Television," Dissertation Abstracts, XXIII (January, 1963), 2414.

became apparent. Meierhenry and McBride undertook an extensive survey to investigate the possibilities of a system of distribution on a national basis. As a result of the survey two major recommendations were made: (1) a nonprofit national centre for recorded televised instruction should be established, and (2) nonprofit regional production and distribution centres for recorded televised instruction should be developed.²³

The possibility of a state-wide distribution system was investigated in a Michigan study. A survey technique was used to obtain the desired data. Conclusions indicated that a recorded distribution system would be much cheaper than a broadcasting system, would provide a permanent record of instruction, would minimize scheduling problems, would permit local-optional use, and would require a limited subscription. However, this system would not provide for immediacy of distribution and the public could not view the programs. A state-wide broadcasting system would impose a common schedule on the schools and be very expensive.²⁴

²³Jack McBride and Wesley C. Meierhenry, "A Study of the Use of In-School Telecast Materials Leading to Recommendations as to their Distribution and Exchange," National Association of Educational Broadcasters Research Fact Sheets, Series 7, No. 16.

²⁴James B. Tintera, "Introduction of a New System

Studies Conducted to Investigate Inter-Media Comparisons

Westley and Barrow designed an experiment to compare the relative effectiveness of equivalent radio and television versions of a series of background-of-the-news programs for grade six pupils. Classroom groups were randomly divided and assigned to either radio or television treatment. Both immediate and delayed recall were measured. Statistically significant superior results in immediate recall of factual knowledge occurred for the television group. There were no significant differences in delayed recall.²⁵

Descriptive Studies of Educational Television

Holmes conducted a unique study when he attempted to evaluate much of the research carried out in the field of educational television up to and including the year 1958. Seventy-five studies were analyzed and this analysis resulted in a number of conclusions about the effectiveness of televised instruction, as well as several recommendations for further recommendations for further research.

of Teaching, Research, and Upgrading Curricula by Televising Our Learning Resources," National Association of Educational Broadcasters Research Fact Sheets, Series 7, Number 17.

²⁵Lionel C. Barrow, Jr., and Bruce H. Westley, "Comparative Teaching Effectiveness of Radio and Television," National Association of Educational Broadcasters Research Fact Sheets, Series 1, Number 71.

Holmes concluded that almost ninety percent of the gross comparisons between television and conventional communication conditions showed no substantial differences in achievement or information gain. Suggestions for further research included the need for an accepted system of correlating results based on common definitions and explicit terminology, the need for more accurate and sensitive instruments and criteria for measuring learning, and the need for greater attention to and evaluation of learning from visual material.²⁶

A descriptive study was made by Moffatt in order to present a comprehensive review of the major experiments being carried on in the use of television in schools below the university level. No attempt was made in this study to evaluate the quality of the projects included in the review.²⁷

III. IMPLICATIONS FOR THE ELEMENTARY SCHOOL

This chapter was not intended to constitute a compre-

²⁶Presley D. Holmes, Jr., "Television Research in the Teaching-Learning Process," National Association of Educational Broadcasters Research Fact Sheets, Series 1, No. 83.

²⁷H. P. Moffatt, "A Review of Experimental Work Being Carried on in the Use of Television as an Aid to Classroom Instruction Below College Level," Canadian Education, XV (June, 1960), 68.

hensive review of research in the field of educational television. The previous outlines of experimentation were designed only to provide a sampling of the types of studies which have been carried out. No attempt has been made at this point to collect and organize all the experimental data in order to draw a series of conclusions. Research findings have been collected, evaluated, and published by Holmes,²⁸ Kumata,²⁹ and Schramm³⁰ and these references will be given due consideration in the next chapter on research. Any further assessment of the state of educational television research will also be made in Chapter VIII. The implications for the elementary school to be discussed in the remaining pages of this chapter will be those which probably would not arise in the later, global approach to the area of research. Emphasis here will be placed upon the implications arising from the nature and purpose of the studies previously described.

²⁸Holmes, op. cit., p.p. 1-4.

²⁹Hideya Kumata, "A Decade of Teaching By Television" in The Impact of Educational Television, Wilbur Schramm, editor (Urbana, Illinois: University of Illinois Press, 1960), p.p. 176-194.

³⁰Wilbur Schramm, "Learning From Instructional Television," Review of Educational Research, XXXII (April, 1962), 156-167.

Again the arbitrary distinction between instructional and administrative factors was drawn. Although it would appear that most experimentation has dealt with the relative effectiveness of different methods of instruction, a substantial number of studies have been conducted which pose other important considerations for the elementary school.

Effect Upon Achievement

Clearly, achievement was the principal concern of most projects. Maximizing student achievement will continue to be a primary objective for the elementary school particularly in respect to basic learning skills. The current trend toward making the elementary school grades responsible for the teaching of more complex concepts required an attitude of experimentation and inquiry on the part of all elementary school educators. Increased instructional demands necessitated increased teaching efficiency.

Effect Upon the Learning Process

Not unrelated to the goal of maximum achievement were the various psychological components of the learner and the learning process. Educational television research has taken a few exploratory steps in this regard, too. Exciting innovations in methodology, and curriculum some-

times tended to push the learner into the background. However, some of the studies considered in the previous pages reflected concern about the learner because they attempted to discover new information in such areas as social adjustment, aspects of different ability levels, attitudes toward subjects, and the relative effects on immediate and delayed recall. Further insights into the nature of the learner and his functioning in the learning process were deemed necessary if better education at the elementary school level were to be attained.

Effect Upon the Instructional Process

Optimum learning depended upon application of the best in teaching methodology. Actual procedures utilized in various learning situations must be examined objectively to assess their value. Tradition should not be the sole criterion for the adoption of any instructional method. Educational television research has explored such topics as relative effectiveness of different teaching media, type of practice activity after a lesson-presentation, teacher qualifications in specific subject areas, and manner of employment of audio-visual aids in the classroom. An open attitude toward the new and a willingness to experiment have to exist at the elementary school level if the present trend toward questioning traditional forms of organization

and conventional methods of instruction is to fulfill its promise.

Applicability to Various Subject Areas

The extent and variety of experimentation indicated that most, if not all, subject areas could be taught by television. Undoubtedly certain subjects and certain phases of a subject were more suitable for the medium, but the wide applicability of television for instructional purposes held significance for the elementary school. The most obvious implication would appear to be the possibility of offering a better quality of teaching in subject areas where qualified teachers were lacking. Supplementing the regular instructional program with an effective educational television offering could help to upgrade the quality of teaching in certain circumstances.

Gathering and Organizing Data

Any studies which looked at the total field of research in educational television could provide a service to elementary school administrators. One benefit would be derived from the act of bringing together all of the research into a more compact, organized source. The data in a single summary or review type of research study could present the same body of knowledge that would otherwise require going to an almost prohibitive number of references.

A comprehensive review of the research might also suggest possibilities that could be followed-through in an actual situation. For example, it was obvious in many of the projects described in this chapter that several studies were conducted as one part of a much larger undertaking. It was, therefore, possible that specific considerations relative to the elementary school might be examined as one feature of a total school system project.

Personnel Relations

Implications for the handling of educational personnel were apparent in some phases of the experimentation. The attitude of teachers toward educational television was significant here. Incorporation of television as a part of the total instructional program posed one more innovation to upset the traditional routines of the self-contained classroom. The amount of adjustment to innovation and change which was expected of an experienced classroom teacher had to be carefully considered by the elementary school administrator. Better utilization of manpower and special teaching talents may or may not result from the use of television--at the elementary school level any modification toward specialization must be regarded as a major departure from the traditional form of teaching in the self-contained classroom.

Distribution of Materials

Efforts to establish a wider distribution of educational television materials should be observed carefully. As with other instructional materials, attempts to achieve greater distribution usually created a number of administrative problems. Transportation of the materials and scheduling them at the most suitable times for the greatest number were two obvious difficulties. However, if vicarious experiences provided by the materials would enrich and improve the instructional program, then the administration should do everything possible to overcome any problems that might arise.

Organizational Considerations

Research into any of the numerous organizational factors could reveal significant information for elementary administration. Educational television projects have frequently involved experimentation with the size of elementary classes. Other areas investigated have included savings in personnel, as well as school buildings and equipment considerations. Effective re-organization of the elementary school for maximum instruction would best result if organizational decision-making were based upon conclusive evidence gathered from rigorous experimentation. Some of the research in educational television

could contribute toward this end.

IV. CONCLUDING STATEMENT

Due to the large number of research factors postponed for consideration in the next chapter, a strong feeling of inconclusiveness existed in regard to much of the previous material. In addition, the frequency of no statistically significant differences tended to weaken the findings of a lot of the experimentation and the quality of weakness seemed to transfer to the entire topic of educational television studies. Many explanations have been offered to account for the lack of statistically significant results, but these explanations will be dealt with in the next chapter rather than at this point.

The varied scope and size of the projects was another noteworthy aspect of experimentation in this field. Much of the work has been undertaken on a very limited scale. However, projects involving several school systems and even nation-wide enterprises were not uncommon. With such a range in the type of work being carried out it was conceivable that a central body to organize and co-ordinate research efforts would effect a better quality of investigation into areas urgently requiring further study. The many formidable problems in organizing such a body are evident, but the obvious benefits that could result

suggest the desirability of further work in this regard. Composition of the group would have to include educational broadcasters, commercial broadcasters, university personnel, and school authorities. It is conceivable that a Canadian Research Co-ordination Group could be initiated under the auspices of the National Advisory Council on School Broadcasting. As well as representation from the National Council, membership in the Co-ordinating Group would have to include additional representatives from university research centres and provincial departments of education. It is to be hoped that the somewhat overwhelming nature of the organizational requirements will not eliminate serious consideration of this possibility.

Although projects' scope and size has varied to some extent, there has been an excessive amount of investigation into the issue of whether television can teach. More will be said about this topic in Chapter VIII, but the fact that so much experimentation has been done in this single aspect of the total picture suggested mentioning the point here. A co-ordinating research body, as recommended in the previous paragraph, would do much to expand the range of purposes for which studies are carried out. The reading of many research studies revealed much about the comparative effectiveness of televised and convention-

al teaching methods, but indicated little about the many other facets of educational television.

Many experimental write-ups were lacking in detail. Frequently these omissions did not appear to have been left out of the actual study, but seemed to be neglected in the report of the study which appeared in the professional literature. Sometimes these details were simply omitted from the actual procedures of the experiment. Considerable improvement in the quality of project descriptions could create more prestige for this phase of educational research and might possibly lead to a better quality of investigation. A "standard" format for experiments similar to that followed in periodicals such as the Journal of Educational Psychology might be one way to encourage improvement in the quality of research reporting.

CHAPTER VIII

RESEARCH IN EDUCATIONAL TELEVISION

An individual assessment of each investigation carried out in the field of educational television was not felt to be within the scope of this study. However, the importance of research to any major educational innovation was so vital that further consideration of the state of experimentation seemed necessary. Strong criticism has been levied against the general quality of research in educational television. Most critics have been able to attack obvious weaknesses in the research designs of far too many investigators. Too often projects were undertaken without adequate attention being devoted to examining previous work in the field, establishing testable hypotheses, and ensuring that the study had a sound theoretical framework.

None of the references used for this chapter dealt specifically with educational television research at the level of the elementary school. Thirty-two articles and eight sections of books were consulted.

I. TOPICS TO BE CONSIDERED

Three basic aspects of research in educational television were considered in the writing of this chapter.

First, a summarized listing of research outcomes was carried out to indicate the type of findings which have resulted from the more reliable investigations. Secondly, an examination of some of the more pertinent appraisals of the research was made. The third primary consideration was to assess the needs of research in this field, that is, the areas which have either not been investigated at all or which have received inadequate attention. Finally, pertinent implications for the elementary school were considered.

II. RESEARCH FINDINGS

Due to the brief and general nature of this segment of the research topic, three summaries or inventories of educational television investigations provided the required information.

Review of Research--1959

A doctoral dissertation by Holmes involved the analysis of seventy-five studies dealing with television's influence on the teaching-learning process. Among his major findings were the following:

¹Presley D. Holmes, Jr., "Television Research in the Teaching-Learning Process," Audio-Visual Communication Review, Vol. 8, No. 4, 239-40.

1. Students, who received content by means of television, evidenced learning in every type examined: 1) Cognitive structure (achievement and critical thinking), 2) Motivation (like or dislike), 3) Group belongingness (socialization, authoritarianism), and 4) Psychomotor skills. Studies by Garry and Mauriello,² Armstrong,³ Kaprelian,⁴ and Lemke⁵ were illustrative of attempts to measure various types of learning.
2. The overwhelming majority (almost 90 per cent) of gross comparisons between television and conventional communication conditions showed no substantial differences in achievement or information gain. The large-

²Ralph Garry, and Edna A. Mauriello, "Summary of Research on 'Parlons Francais': Year Two," Audio-Visual Communication Review, Vol. 10, No. 3, A-130.

³Robert D. Armstrong, "Teaching Work-Study Skills by Television," Alberta Journal of Educational Research, VII (March, 1961), 12-27.

⁴George Kaprelian, "Attitudes Toward a Television Program--Patterns in Arithmetic," Arithmetic Teacher, VIII (December, 1961), 408-12.

⁵Olga M. Lemke, "Final Research Report on the Effectiveness of Television in Teaching Guidance at the Sixth-Grade Level," Audio-Visual Communication Review, Vol. 10, No. 6, A-133.

scale projects conducted in Milwaukee⁶ and Norfolk⁷ were examples of studies producing no statistically significant differences in achievement.

3. The content of the studies indicating differences in information gain showed television favoring the sciences, and conventional methods favoring English, speech, and communication. Experimentation by Kraft⁸ and the National Program for the Use of Television in the Schools⁹ provided support for this finding.
4. When immediate post-tests were administered, students generally exhibited the same or greater information gain under television conditions as they did under conventional conditions. Amirian conducted a study which revealed comparable achievement in information

⁶"The Milwaukee Experiment in Instructional Television: Evaluation Report," National Association of Educational Broadcasters Research Fact Sheets, Series 1, No. 84.

⁷"The Norfolk City Experiment in Instructional Television," National Association of Educational Broadcasters Research Fact Sheets, Series 1, No. 80.

⁸Mary E. Kraft, "A Study of Information and Vocabulary Achievement From the Teaching of Natural Science by Television in the Fifth Grade," Dissertation Abstracts, XX (April, 1960), 1097.

⁹"Supplementary Report of the National Experiment of Television Teaching in Large Classes," National Association of Educational Broadcasters Research Fact Sheets, Series 1, No. 100.

gain on an immediate post-test.¹⁰

5. There was conflicting information regarding the high and low intelligence groups, as to which fared better under certain communication conditions. Different findings in this area were reported by Jacobs and Bollenbacher¹¹ and Kraft.¹²
6. Most studies indicated that students' opinions of television became more favorable after exposure than they were before exposure. This attitude was evidenced in a project in the Cincinnati school system.¹³
7. There was little relationship between students' information gain, and their attitudes toward the communication conditions. This finding was borne out

¹⁰Gerald T. Amirian, "The Retention by Elementary School Children of Natural Science Material Taught by Television," Audio-Visual Communication Review, Vol. 10, No. 6, A-123.

¹¹James N. Jacobs, and Joan K. Bollenbacher, "An Experimental Study of the Effectiveness of Television Versus Classroom Instruction in Sixth-Grade Science in the Cincinnati Public Schools, 1956-1957," Journal of Educational Research, LII (January, 1959), 184-89.

¹²Kraft, op. cit., p. 1097.

¹³James N. Jacobs, and John Grate, "Teaching Sixth-Grade Science by Television," Elementary School Journal, LXIII (November, 1961), 96-103.

also in the results of work in Cincinnati.^{14,15}

8. Students' attitudes toward "television" were more accurately described as attitudes towards other elements involved in the teaching-learning process, such as the instructor, the situation, and the content. Schramm¹⁶ later supported this point of view with evidence quoted from the work of Carpenter and Greenhill at Pennsylvania State University.

Review of Research--1960

In a later publication, Kumata looked at the problem of what new information could be added to his 1956 summary of the research.¹⁷ Results of the 1956¹⁸ summary were not included due to the availability of more recent inventories. He concluded:

¹⁴Ibid., p.p. 96-103.

¹⁵James N. Jacobs, John Grate, and Ulliance M. Downing, "Do Methods Make a Difference in Educational Television?", Elementary School Journal, LXIII (February, 1963), 248-54.

¹⁶Wilbur Schramm, "Learning From Instructional Television," Review of Educational Research, XXXII (April, 1962), 162.

¹⁷Hideya Kumata, "A Decade of Teaching by Television," in The Impact of Educational Television, Wilbur Schramm, editor (Urbana, Illinois: University of Illinois Press, 1960), p.p. 191-92.

¹⁸Hideya Kumata, An Inventory of Instructional Television Research (Ann Arbor, Michigan: Educational Television and Radio Centre, 1956), p.p. 1-155.

1. Motivation was of prime importance in determining the effects of televised instruction. This conclusion was drawn from the fact that television groups were more often superior in instances where their participation was voluntary. These findings appeared in a series of studies at San Francisco State College which Kumata had examined.
2. Preparation of subject matter and integration into a teaching process was vital to effective televised instruction. He felt that the more frequent favorable results for television at the lower educational levels was due to the greater amount of planning and integration into the educative process. Kumata again drew these conclusions after examination of several studies conducted at different school levels.
3. Television appeared to produce different effects upon different intelligence or ability levels, but the exact nature of these effects was uncertain. The studies of Jacobs and Bollenbacher,¹⁹ and Kraft²⁰ were previously noted in this respect.
4. There was no statistically significant difference in retention of subject matter between pupils taught by

¹⁹Jacobs and Bollenbacher, op. cit., p.p. 184-89.

²⁰Kraft, op. cit., p. 1097.

television and pupils taught by the conventional method. An example of this finding was previously referred to in the work of Amirian.²¹

5. There was no relationship between attitudes toward television and extent of learning as measured by achievement tests. Results of part of the Cincinnati project supported this finding.^{22,23}

Review of Research--1962

Another fairly comprehensive review of the research findings was undertaken by Schramm.²⁴ He noted the following significant factors based upon a careful examination of 425 studies.

1. When the usual tests of achievement used by schools to measure student progress were employed it could be said with considerable confidence that in 65 per cent of the comparisons there was no statistically significant difference. In 21 per cent of the comparisons, students learned significantly more from television,

²¹Amirian, op. cit., p. A-123.

²²Jacobs and Grate, op. cit., p.p. 96-103.

²³Jacobs, Grate, and Downing, op. cit., p.p. 248-54.

²⁴Wilbur Schramm, "Learning From Instructional Television," Review of Educational Research, XXXII (April, 1962), 156-67.

in 14 per cent they learned significantly less.

2. The results for grades three to nine favored television to a significant degree more than those for high school and college.
3. Mathematics, science, and social studies have been very successfully taught on television. Language skills, health, and safety have been less successful. History, the humanities, and literature have been the least successful. Some important interaction appeared to occur between subject matter and grade level. Televised language skills have been found to be somewhat less effective than have other televised subjects at the early elementary school level. Mathematics has been more effectively taught by television in the early grades than in high school. Televised instruction in social studies has been less effective in college than in the lower grades.
4. Students in the elementary school, as a general rule, thought they learned more from television classes. High school and college students were more doubtful. In general, elementary-school children were enthusiastic over televised instruction, high school students were much less so, and college students were equivocal or even unfavorable. The evidence suggested no rela-

tionship between ages or grade level and attitude, but indicated that attitudes tended to be specific to subjects and teacher.

5. Most teachers who had taught on television appeared to like it. Suspicion and resentment tended to be found among those who did not teach on television. The extent of opposition was less among elementary school teachers. Most teacher resistance to educational television was found at the university level.

III. EVALUATION OF THE RESEARCH

As previously indicated the general evaluation of educational television research has not been favorable. Certainly in a field where such a large amount of experimentation has taken place, there have been many excellent investigations. Unfortunately, the number of studies which could meet the rigorous demands of good scientific inquiry was considerably less than the number of poor attempts at research. Most of the criticisms could be grouped in the following major categories: the nature of what was being measured, the type of measurement instruments being used, other aspects related to the research design, and the lack of statistically significant findings. Before considering each of these topics, some attention should be

devoted to a number of problem areas facing researchers in educational television.

Problem Areas

While many of the problems confronting good research in this field were the same difficulties involved in educational research in general, several factors appeared to be peculiar to educational television.

The operation of three special biases in educational television research has been suggested by Sherburne.²⁵ These biases were categorized as measurement, disarticulation, and philanthropy. Measurement biases were those resulting from the preoccupation with quantification. Many vital questions and problems regarding educational television were and are non-quantifiable. Disarticulation biases arose from the multiplicity and dissimilarity of the specialties involved in teaching by television and the lack of people with a broad grasp of a number of these fields. The special abilities of the teacher, curriculum or content expert, psychologist, and broadcaster were illustrative of the various items involved in televised instruction. Philanthropic biases arose from the influence

²⁵E. G. Sherburne, Jr., "ETV Research in the Decade Ahead," Audio-Visual Communication Review, Vol. 8, No. 4, 195.

of the sources of funds for research. Primarily these funds came from organizations which were interested in testing very specific aspects of instructional television, that is, for easing pressing school problems such as large enrollments and teacher shortages.

Attridge noted, as two problem areas in educational television research, the gap between inquiry and action, and the lack of sound theoretical considerations.²⁶ A good part of the cause for a lag or gap between inquiry and action was felt to be the current rigidity in experimental design and methodology which tended to discourage any inquiries that were not completely quantifiable. The neglect of theoretical considerations was largely attributed to the operational nature of many projects. These problem areas were obviously related closely to the previously-mentioned biases of measurement and philanthropy.

Financial support, personnel and facilities, time and opportunity and an organization for service were four major problem areas identified by Adkins.²⁷ He believed

²⁶Bruce F. Attridge, "A Producer Looks at Research," Canadian Education and Research Digest, I (September, 1961), 63-4.

²⁷Gale R. Adkins, "Problems in Research in Educational Broadcasting," National Association of Educational Broadcasters Journal, XIX (November-December, 1960), 29.

that better planning and more rigorous experimentation would likely attract more money for educational television research. Research as a specific part of the budget for any project was also suggested. An improved quality of research should attract more people and facilities for educational television, including qualified people from other fields. He noted the need for definite time allocation for research and provision for research procedures as an integral part of the planning stage. More organized research efforts would result from a single research body responsible for facilitating, assisting, and co-ordinating research.

What Is Being Measured?

Neglect of some of the major goals of instruction has been suggested as one of the most important weaknesses in educational television research.²⁸ Research needed to be concentrated on the more basic questions of how students learn or how they acquire a certain behavior pattern before any attempt was made to find out whether they could learn better from one medium than another. Effective experimentation would involve establishing course goals, planning

²⁸Samuel L. Becker, "Research in the Teaching of English with Mass Media," Elementary English, XXXVIII (October, 1961), 403.

experimental conditions that would meet these goals, and objective testing to determine whether the goals were attained.

There was also a noticeable lack of attempts to identify those unique learning gains that result from television, and those unique learning gains that result from regular classroom instruction. The fact that certain instructional advantages derived from the nature of television and other instructional advantages derived from the nature of the conventional classroom has been readily acknowledged. This fact has rarely been noted in experimentation, thus it would appear that attempts were being made to compare two methods which were not comparable.²⁹ An additional complication in this regard would be establishing an acceptable definition of conventional instruction.

The use of achievement test scores as the only criterion of the effectiveness of televised instruction has been questioned seriously by many research critics. These critics generally asked the following types of questions: Is the purpose of education simply to increase

²⁹Daniel Tanner, "Needed Research in Instructional Television," School Review, LXIX (Autumn, 1961), 312.

scores on tests? What other evidence of learning should be considered? In what curriculum pattern can television do a more effective job than that done by conventional methods?³⁰

After an examination of the results of educational television research in terms of Bloom's taxonomy of educational objectives, Niven drew this conclusion:

The instructional television research that is considered here was evaluated in terms of the cognitive domain and the psychomotor domain. There has been little or no research done that has been concerned with the educational objectives included in the affective domain: appreciation, values, interest, and judgment.³¹

It has also been suggested that the main research efforts in educational television were directed toward evaluation of the "strategy and tactics of education" rather than toward the "logistics and core substance of education."³² Research activities were criticized for not investigating the complex factors of motivation,

³⁰Edward R. Fagan, "Educational Television--What's the Story?," Clearing House, XXXV (January, 1961), 259.

³¹Harold Niven, "A Glance at ITV Research," National Association of Educational Broadcasters Journal, XX (May-June, 1961), 53.

³²Education Centre Library, Television in the Classroom: Part III (Toronto: Board of Education, 1961), p. 20.

perception, learning, the communication process, and organizing and programming information for learning.

The Measuring Instruments

Inadequacies in the instruments used for measuring the extent of learning from television have been noted in several references. Studies which have employed measures other than simple retention tests, have tended to be unreliable and have frequently resulted in a lack of statistically significant differences between the groups being compared.³³ The lack of statistically significant differences due to inadequate measurement tools was also indicated by Tanner who suggested that the usual instruments were incapable of identifying those dimensions of learning which were beyond the typical measures of academic achievement.³⁴

Measurement of visual learning by conventional verbal-symbol testing methods has been a major weakness in nearly all evaluative survey projects. A more exact element of measurement appeared necessary in order to accurately and reliably evaluate learning based on the visual presentations of televised instruction.³⁵

³³Becker, op. cit., p. 402.

³⁴Tanner, op. cit., p. 312.

³⁵Carl E. Willer, "ETV: Education's New Frontier,"

Skornia stated that the measurement techniques and tools being used were inadequate for the types of learning and conditioning which were taking place because the measurement instruments were designed to measure only lineal and print-based effects. He stated further that the recognition of this inadequacy in the testing and measurement procedures was leading to a re-examination of the interrelationships, biases and strengths, and interplay of all media.³⁶

Other Aspects of Research Design

The influence of novelty upon the subjects in most educational television studies was not neutralized. The effects that were exerted on motivation by the novelty factor added some degree of distortion to the idea of a "typical" performance.³⁷ This point was related closely to the general absence of longitudinal studies. Little evidence existed on the effect of television over a long

National Association of Educational Broadcasters Journal, XXI (September-October, 1962), 1.

³⁶H. J. Skornia, "The Impact of Radio and Television on Education in the U. S. A.," in The Yearbook of Education (London: Evans Brothers Limited, 1960).

³⁷Hollis L. Caswell, "A Curriculum Viewpoint on Educational Television," Educational Leadership, XV (November, 1957), 107-15.

period of time where the novelty effect had been dissipated through the use of televised instruction for a four to five year period.³⁸

Televised instruction has generally been compared with the use of conventional procedures. Some doubt was cast upon the value of this technique by Tanner who suggested that the resulting comparison was not good because the conventional situation was so far from the ideal teaching method.³⁹ For example, note-taking from the board was often over-used and excessive reliance too frequently placed upon the textbook as the single source of information. Most experiments involving comparisons between televised and regular instruction have used the lecture method as the conventional procedure because it was most like television teaching. Caswell argued that this approach worked against conventional practice which normally consisted of small group and individual instruction as well as the large-group lecture presentation.⁴⁰

The rather narrow scope of objectives established has already been referred to in this chapter, but it is

³⁸Becker, op. cit., p. 402.

³⁹Tanner, op. cit., p. 312.

⁴⁰Caswell, op. cit., p.p. 107-15.

mentioned again at this point because of its relevance to weaknesses in research design. Good planning, based upon a sound theoretical framework, was basic to an effective investigation. Although there were definite signs of improvement, the tendency in early work was to set up objectives and evaluation procedures after the project was already underway. Most experiments have been evaluated in relation to limited educational objectives--how much factual knowledge had the student gained? How did students like television as compared with conventional teaching?⁴¹ Although the previous statement was made in 1957, more recent comments on the nature of research in educational television were substantially the same.⁴²

Becker identified two other major weaknesses in the quality of most research designs. "In no case was there sufficient control to enable effects to be attributed to a single cause and thus to be repeatable at will."⁴³ By this statement he was suggesting that the effects of the medium were being confused with the effects of surrounding activity. "Related to the failure to isolate variables has

⁴¹Ibid., p.p. 107-15.

⁴²Tanner, op. cit., p. 311.

⁴³Becker, op. cit., p. 401.

been the failure to duplicate studies with comparable goals, students, and procedures."⁴⁴ The laws of probability would be given a higher degree of precision through careful replication of studies.

The Lack of Significant Findings

The absence of statistically significant differences which has plagued so many of the research efforts in this field was partially accounted for, by some writers, in the narrow range of objectives established for the majority of studies,^{45,46,47,48,49} and the inadequacy of the instruments used to measure relative effectiveness.^{50,51,52,53} Two writers have taken a particularly close look at this problem. Tanner suggested three basic reasons:

1. Most investigations into learning effectiveness between

⁴⁴Ibid., p. 402. ⁴⁵Becker, op. cit., p. 403.

⁴⁶Tanner, op. cit., p. 312.

⁴⁷Fagan, op. cit., p. 259.

⁴⁸Niven, op. cit., p. 53.

⁴⁹Education Centre Library, op. cit., p. 63.

⁵⁰Becker, op. cit., p. 402.

⁵¹Tanner, op. cit., p. 312.

⁵²Willer, op. cit., p. 1.

⁵³Skornia, op. cit., p. 228.

television and conventional methods were designed only to measure knowledge of the subject. This was only one type of learning which did not include such considerations as changes in behavior, critical thinking, and growth in appreciation.

2. The effects of participating in an experiment were almost impossible to isolate in television experiments. This could be overcome to some extent by longitudinal studies.
3. The television teacher was more highly motivated--he would likely do a better job of teaching when he was in front of the television camera than he would do in the confines of his own classroom.⁵⁴

Six reasons were suggested by Williams:

1. In comparisons of "two conditions of communication"--televised and direct instruction--the television teacher was generally a master-teacher, with a large amount of preparation time, the assistance of experts, and numerous learning resources. These were rarely available in the conventional classroom situation. Thus it appeared that other factors operated in the conventional situation to produce comparable information

⁵⁴Daniel Tanner, "Television and Education," Teacher's College Record, LIX (March, 1958), 344-49.

gains. What appeared to be a virtual equality in the effectiveness of the two methods might result from a cancellation of different factors of effectiveness rather than from a similarity of such factors.

2. Another possible reason might be found in the nature and scope of evaluation. The multiple-choice tests generally used in television experiments measured little more than the ability to recall facts.
3. Concimittant learnings, such as the ability to work creatively, were not measured.
4. Timing of the tests might be an influence. "Cramming" at the secondary school and college levels could affect the results.
5. The short duration of most experiments. True differences would only be revealed through successive comparisons made over a long period of time.
6. Television might not be utilized in the optimum manner. Many teachers involved with using the medium received insufficient training and guidance.⁵⁵

The need for an upgrading in the quality of educational television research was readily apparent. A variety

⁵⁵Catherine M. Williams, "Re-examination of 'No Significant Differences' that ITV Studies Report," Audio-Visual Communication Review, X (July, 1962), 263-65.

of reasons for the low quality were suggested in this section. Perhaps the rapid growth and development of educational television meant a lack of demand for research results.⁵⁶ At any rate the need was obvious and, in many instances, the means for meeting this need were also obvious. Adkins suggested that the responsibility for improving research efforts rested with everyone engaged in the field of educational television. He cited the requirement for involving other specialists in areas where television educators were weak, and the importance of clear, objective reporting of experimental work.⁵⁷

IV. SUGGESTIONS FOR FURTHER RESEARCH

The many potential contributions of television toward improving education should be thoroughly investigated. Television's varied influences on the instructional process must be explored. More emphasis on the possible outcomes of televised instruction was required. A much broader scope for research was necessary if educators were to take full advantage of the excellent opportunities provided by this new technique.⁵⁸ The foregoing statements

⁵⁶Adkins, op. cit., p. 29. ⁵⁷Ibid., p. 34.

⁵⁸"In-School Uses of Television," Educational Record, XXXVIII (July, 1957), 286.

were indicative of the types of topics which had been suggested as worthy of more research emphasis. The large and varied number of suggestions for further research in educational television have been categorized in the following manner: the learning process, outcomes of learning, the nature of television, the learner and television, utilization, and other considerations.

The Learning Process

The practical applications of television to teaching and learning have clearly revealed how little was actually known about the process of learning. In many respects the concept of the learning process seemed limited to those factors which could be measured by existing testing instruments. The concern of educators for making the best possible use of television as an instructional medium led to many questions regarding the components and workings of the learning process.

Inter-communication between teacher and pupil appeared necessary for successful instruction. Research into the total function of inter-communication was necessary, including such factors as discussion for motivation, recitation and drill for practice, and feedback for guid-

ance and direction in the task of teaching.⁵⁹

More depth research into the nature of the learning process was called for by Adkins,⁶⁰ and Willer.⁶¹ They suggested the need for investigation of patterns of retaining knowledge, stimulating mental imagery, and a new dimension in the measurement of learning from further innovations in the visual education field.

Attempts to demonstrate that televised instruction was at least equally effective as conventional instruction became almost habitual. Means should be sought for using television to extend the learning process beyond the limitations set by traditional methods in a conventional classroom setting. New ways of accomplishing the goals of education might free the teacher for more creative and individualistic work with his pupils.⁶²

The potential contribution which television could make to maximizing the effectiveness of the total learning process must be strived for. Restricting the medium to the limits of current concepts of learning from televised

⁵⁹Niven, op. cit., p. 55.

⁶⁰Adkins, op. cit., p. 33.

⁶¹Willer, op. cit., p. 1.

⁶²Tanner, op. cit., p. 320.

instruction was sheer waste. Dunkel suggested that the lack of statistically significant differences between television and conventional teaching might have been satisfactory for early researchers, but such findings today were completely insufficient.⁶³

Beck noted that educational television research raised consistently many unsolved basic problems in the fundamental areas of the learning process. The pressing need was for research that would yield results suitable for generalizations. Research into the learning process and television must work from and toward sound theoretical systems.⁶⁴

The Outcomes of Learning

Obviously related to the process of learning were the results or outcomes of that process. Throughout the professional literature there was an expressed need for going beyond the type of product commonly measured in educational television experimentation. In a general way, attention should be devoted to the types of learning outcomes which could result from instructional television

⁶³Dunkel, op. cit., p. 247.

⁶⁴Education Centre Library, op. cit., p. 63.

that could not be derived from conventional instruction, and the types of learning outcomes which could result from conventional instruction that could not be derived from instructional television.⁶⁵

Emphasis in this area tended to focus upon the kind of knowledge that could be conveyed best by television and the type of manner in which the learner could use this knowledge. Kelly asked, "What are the new kinds of learning that become feasible now that television is available to the educator?"⁶⁶ In this respect, the limitations of the measuring instruments again arose. Measurement must go beyond the retention of information and the attainment of certain skills into the areas of critical thinking, creativity, and attitudes of inquiry.⁶⁷

Kelly suggested several other dimensions in which television's impact might be measured:

1. The possibility that some skills could be taught by television that could not be taught by conventional methods.
2. Certain interests might be aroused by television that

⁶⁵Tanner, op. cit., p. 312.

⁶⁶George A. Kelly, "Dimensions of Measurement in Educational Television," AERT Journal, XV (December, 1955), 24.

⁶⁷Tanner, op. cit., p. 312.

would not otherwise arise.

3. Ideas and insights underlying a variety of experiences might be discovered.
4. Convictions and beliefs might be revealed that would not appear under conventional conditions.
5. The pupils' use of learning resources could be strengthened as a result of televised instruction.⁶⁸

The Nature of Television

Examination of the learning process and its outcomes would be more effective if it took into account questions arising from the nature of the medium being used to educate. It was quite possible that concern over the results of using television led to a neglect of research into the nature of television. Sherburne classified educational television research as either internal or external. The primary concern of internal research was not with what happened to the viewer, but with how the material was brought together, organized, presented, and made a complete audio-visual unit. External research involved questions external to the actual presentation, such as effect, retention of subject matter, attitudes toward the medium, and comparisons with traditional teaching. He urged a

⁶⁸Kelly, op. cit., p. 25.

change in emphasis from external to internal research.⁶⁹

A need existed to look closely at television's full potential as a visual medium. The pictorial-verbal nature of the communication process must be examined and this consideration should also involve the basic features of television communication including insights into what television could communicate best.⁷⁰ Tanner noted the tendency to imbue educational television with verbalization, a criticism which had long been directed toward the instructional process, and suggested that research might provide the means to maximize television's visual strength.⁷¹

Other considerations arose in discussions of the nature of television. The great amount of time spent in viewing television and the comparative recency of the medium suggested the need for attempts to assess its novelty effect.⁷² More research was required into production techniques. For example, what type and extent of camera movement would increase the impact and satisfaction of a television presentation.⁷³ A vast area for further

⁶⁹Sherburne, op. cit., p. 198. ⁷⁰Ibid., p. 198.

⁷¹Tanner, op. cit., p. 312. ⁷²Ibid., p. 312.

⁷³Attridge, op. cit., p. 65.

research was created by the problems and possibilities arising from television's capabilities for transmitting large quantities of different kinds of information to large, remote audiences.⁷⁴

The Learner and Television

Learner reaction to television was usually assessed in terms of attitudes toward the medium. Certainly other aspects of the effects resulting from a combination of learner and medium in a teaching situation were important. Perhaps this was another vital area where educational television research had been more effective in revealing what was not known that in producing new knowledge.

Some physiological considerations, particularly in the area of visual functioning, merited investigation. For example, what happened to a young child's field of vision as movement on the television screen was intensified?⁷⁵ Due to the desirability of instruction beginning from the child's current level of knowledge and interest, it would be beneficial to determine whether children

⁷⁴C. R. Carpenter, "Approaches to Promising Areas of Research in the Field of Instructional Television," in New Teaching Aids for the American Classroom, U. S. Department of Health, Education, and Welfare (Washington: United States Government Printing Office, 1962), p. 84.

⁷⁵Attridge, op. cit., p. 65.

brought the same expectations and selective ideas to in-school or educational viewing as they brought to leisure-time viewing.⁷⁶ Motivation was an area examined in most educational endeavors. The absence of some traditional motivational factors in televised instruction, such as personal interaction between teacher and pupil, and the importance of individual initiative and self-direction for maximum learning from television suggested the need for research into understanding and influencing pupil motivation.⁷⁷

Utilization of Television

A relatively limited approach to the utilization of educational television has been taken in most of the experimentation. The potential of television as a medium of instruction, whether used by itself or in combination with other media, was not sufficiently explored.

Research evidence suggested that television could be used for instruction in nearly all subject areas, but it appeared that there were different aspects of learning for which the medium was most effective. Research must seek the answers to these questions: with what format or procedure can television teach a certain item most effec-

⁷⁶Ibid., p. 65. ⁷⁷Carpenter, op. cit., p. 86.

tively? what aspects of a television program actually produces learning? what types of learning can be taught most effectively with television?^{78,79} Related to current pressures to re-examine and re-construct curricula at all educational levels was the suggestion that in televised instruction certain types of learning might be particularly applicable at specific times.⁸⁰

Television's role as a part of the total instructional program continued to required further study. Considerations in this respect should not only take account of other media, but of various learning materials as well.⁸¹ Research was required to determine the best balance between televised and conventional instruction in given situations and the best method for using television in conjunction with the newer media of instruction such as teaching machines.⁸² Carpenter recommended scientific inquiry into analysis of systems which were parts of

⁷⁸Adkins, op. cit., p. 33.

⁷⁹Alexander J. Stoddard, "Can TV Teaching Make a Difference?," National Education Association Journal, XLVI (October, 1957), 440-42.

⁸⁰Attridge, op. cit., p. 65.

⁸¹Adkins, op. cit., p. 33.

⁸²Tanner, op. cit., p. 312.

specific areas of teaching to determine the best place for television in instruction, discovery of the limitations of television teaching, development and methods for overcoming these limitations, and determination of the characteristics of patterns or combinations of media in different learning situations.⁸³

The television teacher and the nature of his work offered a fertile area for more experimentation. A question which has not been satisfactorily answered for conventional classroom teachers could also be asked of television teachers--what are the characteristics of a good television teacher? Assuming that these characteristics could be identified, how could they be developed?⁸⁴ More investigation was necessary to find whether the incorporation of television into the regular classroom instructional program could create more time for preparatory and follow-up work for both the television and the classroom teacher.⁸⁵ Research must provide more knowledge about the criteria for selecting television teachers and the goals and requirements of training programs for television

⁸³Carpenter, op. cit., p.p. 84, 88-9.

⁸⁴Sherburne, op. cit., p. 198.

⁸⁵Stoddard, op. cit., p.p. 440-42.

teachers.⁸⁶

Other Considerations

This section on future research has only touched a limited number of the areas in educational television that required more and/or better research efforts. The emphasis up to this point has been on the identification of research topics. Improvement in the quality of investigations could only result from an intensive program of up-grading methods and procedures.

The rapid growth of educational television has tended to develop a new kind of specialist--the educational broadcaster. There were few people currently active in the field who were experts in both broadcasting and education, thus most individuals were either broadcast or education-oriented. Perhaps the drive for development of educational broadcasters could explain partially the limited presence of other specialists and disciplines in the field of educational television. Seeking and using the expert assistance of specialists from other areas, such as statistical and social science research methods, should improve the quality of investigations into instructional television. This would be an application of the "consul-

⁸⁶Carpenter, op. cit., p. 87.

tative" approach to educational television research.⁸⁷

As the scope and quantity of research efforts expanded there was an increasingly urgent need for a greater degree of direction and co-ordination. Formation of an organization with specific responsibility for overseeing research undertakings would appear to be a worthwhile consideration. Both Carpenter and Beck have made suggestions along this line. Carpenter suggested establishment of five or six communications research centres to ensure that replication of research could be done when required, but expensive, unnecessary duplication of work could be avoided.⁸⁸ A similar, though more generalized, approach was taken by Beck who advocated a number of permanent experimental research centres to investigate basic problems in learning and academic development. He believed this move would not only improve the immediate efforts in instructional television but would also up-grade other areas in a massive effort to achieve a higher degree of excellence in education.⁸⁹

A final consideration involved the need for more

⁸⁷Attridge, op. cit., p. 66.

⁸⁸Carpenter, op. cit., p. 91.

⁸⁹Education Centre Library, op. cit., p. 63.

publication of research efforts. Guba stated that research projects undertaken by a local school system would be of limited value unless the information was made public.⁹⁰ Publication was a primary means of sharing knowledge. Much of the research in educational television appeared in the form of mimeographed reports rather than in professional journals.⁹¹ Perhaps some of the repetition of previous mistakes and needless duplication of effort could be attributed to a lack of publicity regarding many research projects.

V. IMPLICATIONS FOR THE ELEMENTARY SCHOOL

Consideration of the various facets of research in educational television suggested little in the way of implications which were uniquely relevant to the elementary school. Probably the main reason for this belief could be found in the highly general nature of research efforts. The vital considerations arising from an assessment of research quality were equally important for all levels of education. Throughout this study there was frequent cri-

⁹⁰Egon Guba, "Measuring the Effectiveness of Instructional Television," Educational Research Bulletin, XL (September, 1961), 161.

⁹¹Schramm, op. cit., p. 156.

ticism of the lack of material in the professional literature that approached important educational topics from the viewpoint of the elementary school. An encouraging note has been sounded by Schramm who analyzed some research findings in terms of specific grade levels in two research summaries.^{92,93} The recency of these summaries indicated what might be a favorable trend for future reviews of research.

Instruction and Learning

Several of the ideas contained in the sections on research evaluation and suggestions for further research appeared to be closely related to aspects of elementary school instruction. The types of learning being measured, the learning process, the nature of television, and the learner and television were topics which held implications for the instructional program, in particular. Certainly the acquisition of factual information was not the only type of learning skill which the elementary school attempted to develop. Much is still not known about the process

⁹²Ibid., p.p. 156-67.

⁹³Wilbur Schramm, "What We Know About Learning From Instructional Television," in Educational Television: the Next Ten Years (Stanford: The Institute for Communication Research, 1962), p.p. 52-76.

of learning in younger children, the best time to introduce certain concepts, and the most effective ways of teaching specific concepts. Psychological and physiological features of young children would bear directly upon their reception of televised instruction and their desire to participate in this different kind of learning situation.

The need for visual instruments to measure visual learning might be particularly significant for the elementary school level. Despite the current emphasis on verbalization in the early grades, the verbal ability of a youngster at this stage was not always an accurate indication of his intellectual ability. It was conceivable that the visual nature of televised instruction could create a new dimension for assessing a child's current level of learning as well as his potential for future academic success.

Utilization in Specific Subject Areas

Evidenced success in mathematics and social studies, and a lack of comparable success in the language arts in the early school grades indicated another reason for looking more closely at both the verbal and visual nature of the learning process. Several possibilities were suggested in this area. Perhaps television teaching should only be carried out in those areas where visual presenta-

tion was an integral instructional feature. It was also possible that the visual nature of television might be utilized to overcome some of the verbal obstacles which the young learner met in the language arts. These two suggestions implied the use of television in a manner which took full advantage of the medium's visual strength or the adaptation of the medium to an area where its use as a supplement to conventional methods could produce a new teaching methodology.

Unique Aspects of Elementary Education

Greater success in achievement as a result of televised instruction was evident at the level of the elementary school. Better integration of television into the total instructional program and a more effective job of preparation on the part of elementary school teachers were the reasons advanced by Kumata.⁹⁴ Schramm suggested several other reasons: due to the recency of televised instruction most elementary school children have "grown up" with the medium, elementary teachers' generally favorable attitudes toward television tend to be reflected in their students, television is a part of the instructional program rather than the sole element as is often the case

⁹⁴Kumata, op. cit., p. 184.

in higher school levels.⁹⁵ All of the above reasons suggested clearly a suitable role in elementary school instruction for educational television.

Education of the "whole-child" was a primary objective at all school levels, but the impact of first experiences with formal education was a significant characteristic of the elementary school years. The lack of knowledge about the nature and extent of concomitant learnings resulting from televised instruction was of particular concern to the elementary school. Research evidence indicated that television's influence upon socialization of the child in a group situation was not nearly as effective as the personal interaction of the conventional classroom. Any consideration of televised instruction in the early school years must take account of the nature of the elementary school in formation of the child's future attitudes toward the school and the process of learning.

Administrative Responsibility

Again the sections which appraised the past state of research and made suggestions for the future of research provided a certain number of ideas which were relevant to administration of the elementary school. Discussions

⁹⁵Schramm, op. cit., p. 165.

dealing with the nature of measuring instruments, research designs, the outcomes of learning, and methods of utilizing television were significant. The entire area of educational television was open to exacting reappraisal and the dynamic nature of today's elementary school curriculum required a continuing inquiry into the efficacy of conventional measuring instruments. Planned provision for rigorous research as an essential need in educational television must be built-into projects undertaken by elementary school administrators. Responsibility for the almost overwhelming task of establishing clear outcomes for learning could never be abdicated at the elementary school level--all features of the instructional program must be directed toward worthwhile, attainable objectives. Clearly the nature and extent of television usage in the elementary school was under the direct control of administrative personnel.

Despite the allegedly operational nature of educational television research there was a noticeable lack of evidence sufficient to form a solid base for administrative decision-making. The operational label which has been applied to research in this field represented a very general view of the term--operational. Relatively little experimentation has been conducted in such areas as

operating cost and manpower deployment. Studies which have been conducted tended to be poorly publicized. Carpenter has indicated that available and adequate answers existed for most problems of operating and managing instructional television.⁹⁶ Such answers were not found in the reference materials used for this study.

Suitability of Television

The most evident finding of all educational television research was that television could teach as well as conventional methods for information gain in most subject areas. For elementary school administrators this meant that televised instruction was a practical possibility for all instructional programs. Any innovation with potential applicability to all facets of the curriculum deserved a very careful consideration.

The positive attitudes toward televised instruction which apparently existed among elementary level teachers and pupils was also a significant finding. This factor suggested that less resistance to incorporation of television into the instructional program would be met in the elementary school, an indication of flexibility and willingness to depart from convention which should be used

⁹⁶Carpenter, op. cit., p. 82.

to advantage in furthering other changes where required.

Fulfillment of the more pressing needs for improving educational television research will not come about from wishful thinking. An outstanding opportunity for real educational leadership is available to elementary school administration in the following areas: creating an attitude of acceptance toward educational innovation, carrying out rigorous studies over longer periods of time, enlisting the assistance of specialists from other fields, pressing for organized research centres, and reporting in detail research projects in the professional journals of elementary education.

VI. CONCLUDING STATEMENT

A movement toward upgrading research in the field of educational television appeared to be underway. This trend must be supported and extended. The lack of quality found in so many of the early investigations has created a degree of notoriety for research undertakings. A poor reputation can only be erased through concrete evidence that proves otherwise. This, then, is the task facing educational broadcasters and educators.

Quality-control procedures must be employed for all studies at each stage of their development from

planning to implications of the findings. No research project, large or small, could afford the luxury of poor research design. Again, the most vital needs appear to be co-ordination and communication of all attempts to investigate scientifically problems posed by the desire to make optimum use of television in education.

It was significant that so many of the references which criticized the quality of research were published prior to 1960. Obviously these warnings have been largely ignored. The same error should not be repeated.

CHAPTER IX

REACTIONS TOWARD EDUCATIONAL TELEVISION

Any attempt to study television in education could readily become overly-concerned with considerations pertaining directly and solely to the medium. When such a state of preoccupation occurred there usually resulted an unfortunate neglect of two of the most important elements in any educational situation--the learner and the teacher. Throughout the course of this study, a concerted effort was made to keep all the integral parts in proper perspective. The primary purpose of this chapter was to bring forth teacher and pupil reaction to television because the medium could not function effectively if these vital human factors were not accorded their proper positions in the instructional process.

In examining the published experiences and ideas of teacher and pupil personnel it was often difficult to prevent overlapping with other ideas previously dealt with in sections on the nature of television, advantages and disadvantages of the medium, and uses of television in education. Efforts to isolate attitudes from other considerations regarding the medium produced a relatively small amount of information. Another major cause for the

brevity of this chapter could be found in the lack of published opinion from the elementary school level.

Schramm, in one of his more comprehensive research summaries, indicated that there was an abundance of information on reactions toward television.¹ However, it should be pointed out that an examination of the references cited in the summary revealed actual school system reports to be the major source of data--comparatively little had been published in the professional education journals.

Material consulted for this chapter included eighteen articles and five sections of books. Eleven of these references contained material relevant to the elementary school.

I. TOPICS TO BE CONSIDERED

The content of this chapter fell into two major categories--attitudes of teachers and attitudes of students. In presenting some of the pertinent ideas within these categories, several of the general findings were considered first, then followed by a selection of some of the specific studies. In addition, a number of implications

¹Wilbur Schramm, "What We Know About Learning From Instructional Television," in Educational Television: the Next Ten Years (Stanford: The Institute for Communication Research, 1962), p. 56.

for the elementary school were examined.

II. TEACHER AND STUDENT ATTITUDES

Schramm carried out the most comprehensive synthesis of published teacher-student opinion regarding television in education.² At the time his summary was published he indicated there was a large amount of material on attitudes and opinions. It is important to reiterate that most of this information was not available in the professional journals.

Teacher Attitudes

Differing teacher opinions were found among grade-levels and extent of participation. Elementary school teachers were most favorable toward the medium, high school teachers slightly less favorable, and university-level teachers were the major centre of resistance to television. Teachers who taught over television tended to like the medium, particularly after they had gained some experience; those who had not done any actual television teaching tended to be more resistant. In general, elementary and secondary school teachers and administrators had a favorable attitude toward televised instruction.

²Ibid., p.p. 56-61.

Differing teacher opinions were also found among the types of subject areas utilizing television. The most popular courses were those enhanced by demonstrations, such as music, art, and physical education. Least favored among the subjects were those requiring a greater degree of classroom drill, such as arithmetic, reading, writing, and spelling. The comparisons among courses were made only at the elementary and secondary levels.

Jacobson and Westley administered a fifty-five-item test to fifty teachers in the fourth and ninth grades. Thirty-three of these had just completed participation in a televised mathematics course while the remaining seventeen teachers had not participated at all. The participating teachers had statistically significant more favorable attitudes toward instructional television. A statistically significant difference in attitude was found between the fourth and ninth grade teachers--the elementary level personnel had more favorable attitudes. No relationship was found between attitude scores and either the teachers' educational level or length of service.³

³Harvey K. Jacobson, and Bruce H. Westley, "Teacher Participation and Attitudes Toward Instructional Television," Audio-Visual Communication Review, X (November, 1962), 333.

A special poll conducted by the Research Division of the National Education Association produced some interesting results. 51.1 per cent of elementary school teachers and 66.3 per cent of principals believed that, if classes were maintained at their present size, teaching by television held promise for at least some improvement in the quality of education. 29.2 per cent of the teachers and 14.7 per cent of the principals thought there was promise of little, if any, improvement. 81.6 per cent of the teachers and principals felt that, with televised instruction, classes could not be increased in size without detrimental effects upon the quality of education.⁴

A questionnaire survey probed the opinions of principals and other supervisory personnel connected with Boston's educational television project--21-Inch Classroom. It was clearly indicated that the value of these programs in arousing interest and improving achievement was almost directly proportional to the classroom teacher's interest in the program and the extent of his preliminary and follow-up work.⁵

⁴"Teaching by Television," National Education Association Research Bulletin, XL (February, 1962), 7-8.

⁵"Visits to American and British ETV Centres," Canadian Education and Research Digest, I (September, 1961), 81.

Previous reference has been made to the E. J. Blott Elementary School in Cincinnati, Ohio, which produced telelessons for use over its own closed-circuit system. Attempts were also made in that project to examine teacher-attitude in two respects--their reaction to appearing on television and their feelings regarding television's value to their students. Although initially apprehensive, the teachers appeared to enjoy working on television. On the second point, they definitely felt the medium to be advantageous. These opinions were gathered through group meetings and individual questioning.⁶

Moser examined teacher opinion on what television could do best and what the classroom teacher could most effectively carry out. Teacher opinion indicated the belief that the classroom teacher could not be replaced by a monitor or teacher-aide. They believed the addition of television in the classroom required the classroom teacher to be better qualified in his subject and a good deal more dynamic in his presentation.

He or she must be thoroughly grounded in the subject field, in child psychology, and in teaching techniques. It takes as long, if not longer, to plan a good lesson for the classroom part of the period as it did under

⁶H. M. Wilds, "Quiet Please! Telecasting," Ohio Schools, XL (November, 1962), 27.

the usual pattern.

We are convinced that in using the television-teacher-classroom team, we are providing better instruction in the subject matter fields than we provide by the traditional methods.⁷

Student Attitudes

As a general rule, elementary school students thought they learned more from television. A more doubtful feeling on this point was evidenced among high school and university students, with the university-level student's attitude typically less favorable to television than that of the high school student. In terms of morale and attitudes, it appeared as though elementary school children were enthusiastic over television, high school students less so, and university students were uncertain about their stand and frequently were opposed to television. Most of the evidence showed that attitudes were specific to subjects and teachers rather than related directly to grade level or age. Attitudes appeared to be more favorable toward subjects requiring demonstrations and less favorable toward subjects where personal interaction, discussion, and drill were important.⁸

⁷Jean Moser, "Television and the Classroom Teacher," National Association of Educational Broadcasters Research Fact Sheets, Series VII, No. 4.

⁸Schramm, op. cit., p.p. 55-9.

The Education Centre Library quoted Cahall's observations of student opinion during a visit to the Hagerstown, Maryland, project. A questionnaire indicated that pupils enjoyed receiving part of their education through televised instruction. They felt they learned the importance of concentration because the instruction was given only once. There was some indication of a favorable attitude toward the faster pace of the television lesson which precluded class interruptions such as the posing of unnecessary questions to the teacher.⁹

An extensive project involving pupil attitude toward televised instruction was carried out by Silagyi. The elaborate questionnaire, administered to 2,840 elementary school pupils in Detroit, Michigan, revealed these opinions:

1. It was easy to learn by television.
2. It was good to discuss the television lesson with the classroom teacher.
3. It was necessary to listen more carefully to the television teacher than the classroom teacher.
4. 58 per cent of the students felt there was no problem

⁹Education Centre Library, Television in the Classroom: Part III (Toronto: Board of Education, 1962), p. 156.

- with the large television classes--the other 42 per cent thought there were too many in the large classes.
5. 69 per cent of the students were satisfied with the location of sets and seats in the viewing room.
 6. 94 per cent of the students liked the television teacher.
 7. Most of the pupils could obtain help if they did not understand the telelesson.
 8. 57 per cent of the students felt their neighbours did not bother them more in the television classes than in the regular classes.
 9. Most of the students believed they were learning as much from their television classes as they were learning from their regular classes.
 10. Half of the students felt they could not "catch up" with their work if they missed a television class.¹⁰

A few of the experimental projects included in Chapter VII also contained some indications of students' attitudes toward instruction by television. At Cincinnati's E. J. Blott Elementary School students behaved as though they were receiving regular classroom instruction in terms

¹⁰D. V. Silagyi, "Pupils Evaluate Educational Television," Phi Delta Kappan, XLIII (June, 1962), 421.

of both attention and interest.¹¹ Some of the findings resulting from Chicago's Patterns in Arithmetic series revealed that the children reacted favorable toward televised instruction, had a more favorable attitude toward the subject, felt they were helped in achievement, and believed they needed more help from the teacher after a telelesson than they required after a conventional lesson.¹² Students participating in the Milwaukee experiment indicated a favorable attitude toward educational television.¹³

III. IMPLICATIONS FOR THE ELEMENTARY SCHOOL

Obviously any worthwhile undertaking in the field of educational television must take careful account of both teacher and student feelings. The information in the foregoing sections of this chapter suggested that the majority of teacher opinion created implications for the administrative level, while considerations raised by pupil opinion were most applicable at the instructional level. Again, the division into these instructional and

¹¹Wilds, op. cit., p. 27.

¹²George Kaprelian, "Attitudes Toward a Television Program--Patterns in Arithmetic," Arithmetic Teacher, VIII (November, 1961), 408-12.

¹³"The Milwaukee Experiment in Instructional Television: Evaluation Report," National Association of Educational Broadcasters Research Fact Sheets, Series I, No. 84.

administrative classifications was purely on an arbitrary basis--both categories could not stand alone, but each was closely inter-twined with the other.

Influence of Specific Factors in the Instructional Situation

It appeared that the effectiveness of televised instruction was determined largely by specific subject areas, purposes, and teachers. Awareness of this "limitation" upon the use of the medium should result in a more purposeful application of television in the various elementary curriculum areas. The obvious intrinsic interest which television held for younger children suggested that it might be used forcefully in a motivational function. Its strength and appeal in demonstration situations indicated great potential in the content fields of science, art, music, and physical education. Significantly the aforementioned subject areas were apparently often lacking in adequate instruction at the level of the elementary school.

Elementary School Student-Attitudes

The highest level of interest and faith in televised instruction seemed to exist among elementary school pupils. Some degree of enhancement for the instructional program should therefore be possible in view of this fact. Integration of television into the total teaching plan

could produce beneficial effects in terms of pupil interest in, attention to, and concern with specific subject fields. Results of higher pupil involvement could mean improved learning and greater satisfaction with the educational process.

Reaction to the Nature of Television

Expanded educational possibilities were suggested by the very nature of television in an instructional setting. The audio-visual character of the medium might be employed to strengthen certain learning skills relevant to aural and visual communication. One of the most apparent learning skills which might be developed beyond traditional levels was that of listening. The need for the printed word will never be greatly diminished, but it is quite conceivable that electronic media might be assigned a larger role in the task of education. Increased development of the listening sense could improve an individual's total educational potential when the amount of time he spent in daily listening activity was carefully considered.

Acceptance at the Elementary School Level

The kinder disposition of elementary school teachers toward instructional television implied some important possibilities for administration. Perhaps this attitude of acceptance could be extended to other forms of educa-

tional innovation. Once some alteration has occurred in the routine of the conventional classroom situation it is possible that further modifications would be met by less resistance. Favorable feelings toward the medium should increase motivation among teachers to make optimum use of television for instruction. If the elementary school could become an effective initiator of innovation, administrators at this level could fulfill a leadership role that would benefit education at all levels.

Favorable attitudes toward television in education appeared to be the result of its use for specific purposes in specific subject fields. This factor suggested that the maximum benefits of television would only be derived from using the medium for those functions which could not be better taught by conventional procedures. Thus the use of television in any instructional program must be limited to suitable, attainable tasks. A "blanket" application of televised instruction is dangerous in that it would not be effective in those areas for which it was unsuitable and the resulting failure could devalue the many good features of the medium.

Personnel Considerations

A number of implications were apparent for the personnel aspects of elementary school administration.

Actual participation in television teaching frequently overcame teacher opposition to the medium. Staff involvement in television projects would contribute greatly to the ultimate success of these undertakings. The range of subjects which the elementary school teacher was generally required to handle had to be considered. It has already been suggested that television's effectiveness was limited to specific situations and subjects. This factor implied that some degree of specialized effort by the teacher would probably be more beneficial than the traditional generalized approach to manpower deployment at the elementary school level. Interest in the specific program was also identified as a prime requisite for a successful educational television undertaking. Teacher-interest, as well as teacher-skill, should be taken into account in the assignment of personnel to television work.

Teachers commonly believed that television work required higher qualifications and greater effort. This belief might be capitalized upon to encourage an upgrading of professional development and an expenditure of more energy in the teaching task. Upgrading teacher qualifications, in particular, should be welcomed at the elementary level where traditionally those individuals with the lowest qualifications have either been placed or have gravitated due to "unsuitability" for work in the higher grades.

Weaknesses in the Literature

One of the major weaknesses in the literature of educational television was the definite lack of published teacher-student attitudes and reactions. Where such reaction has been ascertained it should also be reported. In addition, every effort must be made to ensure that television projects made some provision for determining the impressions of the major participants in any educational undertaking--the teacher and the student. The onus for such responsibilities must be accepted by administration. Greater sharing of knowledge gained in this important facet of instructional television would be an invaluable contribution toward further progress.

IV. CONCLUDING STATEMENT

The topic of attitudes and reactions toward television appeared to be a significant consideration for any study purporting to examine the medium's worth in terms of its potential contribution to education in the elementary school. Most of the available published data indicated a somewhat more favorable attitude toward television among elementary school students and teachers. This dimension of attitude was probably the only one where such a notable distinction could be found between the elementary and post-elementary levels. There was little doubt that attitudinal

factors had to be carefully assessed in determining the possible values of any educational innovation.

Perhaps one idea which had not been emphasized deserves repetition at this point. Many inquiries into the area of attitudes and opinion have revealed considerable influence upon student-teacher reactions by non-television elements. In attempting to describe the pattern of student attitudes toward instructional television, Schramm noted that such factors as location of seats and differences among television teachers entered into the development of attitudes toward the medium.¹⁴ How large an influence attitudes should exert upon decisions to implement or not implement any new method was moot, but consideration of attitudes should take account of all the elements contributing to formation of the attitudes. Investigation of this facet of educational television has not been adequate.

There existed a distinct possibility of some relationship between teacher attitude and the lack of published "reactions" in the professional literature. Although elementary school teaching personnel tended to feel more favorable toward television than their counterparts at higher school levels, it was frequently suggested that teachers were generally opposed to televised instruction.

¹⁴Schramm, op. cit., p. 58.

The term "opposed" might be too strong here, but there was little doubt that large numbers of teachers at all school levels were somewhat apprehensive toward television's role in education. It was possible that much of the suspicion could be attributed to a fear of the unknown. Few teachers were going to make the necessary effort to write to school systems for actual project reports and few teachers had an opportunity to read the relatively limited number of educational broadcasting periodicals. There was a decided lack of communication of reactions toward educational television between those educators engaged actively in the work and those educators who might be able to make valuable contributions to the work.

More cognizance must be taken of student and teacher attitudes toward television in education. The student could not be forgotten because his learning was the prime object of all educational effort. Neglect of the teacher took the process of instruction away from the most influential factor in any learning situation. The medium of television holds great promise for improving education, but fulfillment of this promise is dependent upon enthusiastic acceptance of television as an effective part of the total instructional program by student and teacher alike.

CHAPTER X

SUMMARY AND CONCLUSIONS

This study was divided into eight major topics in order to present as complete a treatment as possible of educational television and elementary education. Each of the selected topics was intended to bring out salient features of the most significant aspects of television's use in a specific school-level setting.

Three primary phases were emphasized in this consideration of educational television and elementary education--theory, application, and evaluation. The first area of concern was the nature of television, per se. Next came an examination of television and the process of learning. The application phase was initiated by an examination of the uses of television in education. Assessment of the foregoing considerations made apparent a number of the advantages and disadvantages of television in education. From this point the focus was directed toward a number of the actual non-experimental projects involving television. As a first step in the final phase of evaluation attention was devoted to the growing body of experimental investigations in educational television. In order to extend these data, an examination was made of the relevant research findings as well as the recognized areas demanding

further inquiry. Finally there was an attempt to determine some of the reactions of teachers and students who were actively involved with the process of televised instruction.

For each of the above topics, several pertinent references were consulted, significant ideas were abstracted, and a synthesis of the accumulated information was undertaken. A general outline of the relevant data selected for each topic was presented before specific implications for elementary school instruction and administration were suggested.

Several of the basic issues in the field of educational television were treated only in a brief manner because the principal focus of this study has been directed toward the implications of televised instruction from the standpoint of the elementary school. Some aspects of the total field have simply been sampled, others have been omitted completely--the study attempted to include only those features with obvious significance for elementary education.

In addition to the very specific scope--the role of educational television in elementary education--there are a number of other limitations in the study: a selective approach was necessitated by the great amount of published material dealing with educational television, primarily secondary reference sources were consulted rather than

original reports of actual projects and conference proceedings, only material published up to the end of April, 1964, was examined, individual assessments of each research project were not undertaken, most of the data were obtained from American experience with educational television, and the personal biases of the writer could not be eliminated entirely in the subjective nature of the study. The writer, however, did strive to maintain continual awareness of his biases and attempted to control these as much as possible.

It was felt that the study would have specific applicability for elementary school educators, at both the administrative and instructional levels, who were interested in the potential contributions of the medium to elementary education. By consulting, collecting, organizing, and interpreting a rather large body of data, it was hoped that some degree of service would be provided to those people involved in this particular school-level setting. In addition it was believed that subjection of television, as one of the most widely-acclaimed of recent educational innovations, to this type of consideration might reveal some useful insights to guide future utilization of the medium in elementary education and suggest areas for further study.

I. SUMMARY AND CONCLUSIONS

Each of the major topics included a number of cogent ideas and suggested a number of conclusions which could be drawn from the available data.

The Nature of Television

Examination of the essential qualities of television revealed conceptual thinking in terms of both the total or "whole" aspect of the medium and the components or "parts" idea of the medium. The "whole" approach consisted of either concepts analagous to transportation systems or theoretical constructs resulting in the development of a model describing the nature of television. Encompassed within the "parts" approach were the various characteristics of the medium. Concern over the interrelationship between the medium and its message was apparent, but television was generally believed to constitute primarily a powerful medium of communication.

It was evident that most of the literature dealing with the nature of television was written in a very general context--no information in this area considered the medium in relation to specific school levels. Equally evident was the dearth of material that probed in depth into the nature of television. General discussions of various characteris-

tics of the medium exemplified the typical treatment of this topic.

The most rational and lucid approach to the educational potential of television appeared in the writing of those individuals who followed the "whole" method of examining the medium. Further complicating the literature on the nature of television were the lack of clearly-defined terms and the confusing of alleged advantages and disadvantages with the essential characteristics of the medium.

A number of conclusions were drawn:

1. Little is known about the functioning of television within a specific context such as education. The communication effectiveness of the medium needs to be evaluated in terms of varied purposes. For example, television for mass entertainment, television for advertising, and television for education. Arguments over the relative worth of the medium or the message seem fallacious because one without the other would be completely ineffective.
2. Too many writers have assessed television on the basis of one or a few facets rather than as a total entity. A more global approach is required in any effort to probe the nature of the medium.
3. Considerable confusion existed between characteristics and advantages of the medium. Writers in the field are

going to have to make clear exactly what they mean when they refer to characteristics of television.

4. The importance of terminology was mis-leading. If standardized terminology is vital, then immediate action should be taken to develop standard terms. If it is not all-important, then space devoted to considering differences between various terms appears to be wasted.
5. Few efforts were made to relate the nature of television to the characteristics and needs of elementary education. Theoretical examination of the medium in terms of specific school levels might lead to better practical applications of the medium at specific school levels.

Television and the Learning Process

Several methods were employed in examining the process of learning. The total process could be broken down into various facets or phases. Differing opinions in this area revealed as few as two and as many as eight major phases in the learning process. The two-way interaction between teacher and student led several writers to compare the process of learning with the process of communication. Several communication-system models were constructed to show that television's role in learning was essentially one of carrying or conveying the information to be learned.

Another approach to determining the operation of the learning process consisted of examining the jobs or tasks which had to be performed in learning activity. It was suggested that television would only be suitable for certain aspects of these tasks.

Although many writers gave whole-hearted endorsement to television for any form of educational activity, there was a general feeling that the medium had specific applicability. Certain types of learning were believed to be better suited to the nature of the medium. Examining the outcomes of learning provided further insight into the learning process itself and television's probable role in enhancing this process.

There was obvious need for both a clearer conception of the learning process and television's role in this process. Conventional concepts were not considered adequate in view of the dynamic nature of education and the growth of educational innovation. The rapid developmental pace of educational television tended to obscure the lack of purposeful direction which often detracted from the positive features of the medium. Both the quantity and quality of literature indicating elementary educators' concern with the role of television in the learning process were lacking.

Several conclusions were drawn:

1. There was no evidence of a universally satisfactory conception of the learning process and the functioning of the components in this process. Perhaps such a concept is unattainable, but understanding of the nature of learning will be required if television is to be employed successfully to improve education.
2. In the professional literature of educational broadcasting, most attempts to examine the learning process were weak. However, there was limited evidence of some work in depth being published on this topic and it is hoped that more will follow. Writers such as McLuhan and Carpenter have made notable contributions in this area.
3. Material on specific applications of television to specific learning situations was lacking. The approach most frequently used was too generalized. A definite effort toward examination of specific features is a vital need.
4. There seemed to be uncertainty regarding what needed to be done to improve teaching through instructional innovations such as television. Goals and purposes are indefinite--a situation which detracts from the potential contributions of television. Clear direction is necessary in this area if better education is to result.
5. The mass circulation nature of television and the explo-

ding school population have resulted in an apparent neglect of the individual. If televised instruction is to be applied suitably to groups of both large and small sizes, then the needs of the individual must be given careful consideration.

6. No concern was evident over the nature of learning at the elementary school level and television's possible applicability to furthering the learning of younger children.

Using Television in Education

Viewpoints on this topic generally followed two lines--general uses and specific uses of television in education. A notable feature of the general approach was the wide scope of actual and potential uses which was suggested. The general lists of uses covered most segments of educational concern in both instructional and administrative areas. It was significant that the number of uses for television grew larger as the extent of experiences with the medium became greater.

Consideration of specific educational uses for television also developed along instructional and administrative lines. Instructional aspects of television included its particular strengths in certain fields of the instructional process such as creating interest, its mass circulation of

good teaching, the ability to go beyond the confines of the classroom to get exceptional learning materials for use within the classroom, assisting individual development by showing man's functioning in society and exposing the best of our cultural heritage, and its potential worth in some aspect of nearly all content fields. Among the administrative considerations were the challenge posed by the potential contributions of television to education, the need to re-examine traditional procedures in the light of advancements in educational technology, possible assistance in the equalizing of educational opportunities as a result of television's ability to mass-circulate instruction, re-deployment of teaching personnel and materials to better handle the exploding student population, possible innovations in school building design, and the potential contribution of television in the tasks of in-service training and public relations.

For the specific instructional requirements of the elementary school there were a number of implications. Television could be used effectively in the creation of the vicarious experiences which are so valuable in teaching young children. The special production techniques of television could assist both the motivation and presentation segments of a lesson. Students with special learning difficulties might benefit from television instruction

where the mode of presentation was different from that employed in the print-based media.

Elementary school administration was expected to derive certain benefits from educational television. The extent of sharing required by this expensive facility was expected to assist in developing more co-operation among the various school levels. Re-examination of traditional procedures could be particularly useful at the elementary school level as would the previous considerations involved in assisting special learning and re-deploying teacher personnel.

The references in this section were noticeably weak in showing how television could be employed for the many uses they proposed. Lack of proof for many allaged uses was very apparent. There was also a lack of recent emphasis on careful consideration of what areas would be served best by television. The thinking reflected in too much of the professional literature appeared to be that it mattered little how television was used as long as it was being used.

Conclusions drawn from this material were:

1. The professional literature seemed to concentrate more on what might be done with television rather than providing information on how the medium could be utilized in various ways. A change in emphasis is required to

bring out worthwhile data for improving the use of television.

2. Several alleged uses were questionable and lacking in supporting evidence. Many writers seemed unwilling to accept television's limitations and tended to ignore them. Application of the medium to all instructional functions will detract from the value of the medium in those areas where it can be highly effective, a warning which is clearly applicable to any aspect of education.
3. There was a lack of recent material concerned with the problem of defining instructional applications for the medium. It appeared certain that educational television could presently fulfill suitably at least two important functions. Firstly, the value of the medium as a teaching aid was evident in numerous instances. Secondly, television could be employed effectively to offer instruction that might otherwise be unavailable. In certain cases, such as the special subject of foreign language instruction in a remote, rural area, the tele-lessons might be classified simply as "surrogate teachers," but, in so doing, they would be providing a high degree of educational service.
4. There was an increasing need for greater awareness of possible new uses for the medium. A continuing question posed to educators should be--can television be used in

new ways for new purposes? It seems reasonable to expect extended use of televised instruction to create new methods of teaching, new materials, and, perhaps, even new content to be learned. Some indication of this trend was already evident in the new methods required by the "team approach" to televised instruction and the inclusion of video-tapes and rear-screen projectors as instructional devices.

5. Several worthwhile non-instructional uses also existed for the medium. Its employment for instructional purposes should not preclude the obvious assets gained from using television in such areas as public relations and in-service training.
6. No particular concern for using television at the elementary school level was evident. The generalized nature of most discussions of uses for the medium suggested applications for the elementary school, but special interest on the part of elementary educators was not apparent in the professional literature.

Advantages and Disadvantages of Television in Education

Alleged advantages for television were found to be primarily "technical" factors, that is, features inherent in the medium itself. In addition, a number of "utilization" factors, those involved in applications of the

medium, were also considered to be beneficial. Technical advantages included the simultaneous aural-visual appeal, the ability to produce close-ups and magnify small areas, the ability to transmit successfully other useful instructional materials, the impact of immediacy, the intimacy of a "face-to-face" style of presentation, the scope of coverage, and the effective use of special production techniques. These had marked effects upon "perception phases" in the instructional process. Utilization benefits were derived from such features as providing unique educational experiences, extending the scope of good teachers, making better use of the teacher's preparation and presentation time, stimulating better instructional performance as a result of exposure to the teacher's peer group, taped presentations which could be used for a variety of educational purposes, and using the visual qualities of the medium for such benefits as observing the classroom situation with a minimum of disruption, close-up shots of work materials, and seeing children's faces rather than just a view of the backs of their heads.

Disadvantages attributed to the use of television in education were examined from both the learner's and the teacher's viewpoints. From the standpoint of the learner television was lacking in several respects-- limited provision for individual differences, little

interaction between student and teacher during the tele-lesson, relative inaccessibility of the medium for individual projects at different times, and reduced interest on the part of a teacher who instructed an "unseen" and comparatively "unknown" class. In the eyes of a teacher several alleged disadvantages could be found in the restricted number of teaching methods suitable for televised instruction, the possibility of lower status for the classroom teacher after being compared with the master teacher on television, the danger of over-reliance on television as the core of the instructional program, and the tendency to break the continuity of the curriculum as a result of using teachers and materials from several points outside the school system.

It was noted in Chapter V that a distinction between disadvantages and problems was evident in some of the literature. Problems were separated from disadvantages on the basis of the former arising primarily from the use of the medium while the latter involved basically difficulties inherent in the nature of the medium. Problem areas included poor production quality in many educational presentations, the need for considerable adaptation and change in ideas to utilize the medium in the most efficient manner, scheduling televised instruction at the best time

for all participating classes, large capital and operating costs, lack of knowledge of the real influence of the novelty effect, control of development and use, meeting highly varied curricular needs, uncertainty about television's role in the total instructional program, lack of acceptance within the teaching profession, and the need for a much higher degree of co-operation among many different areas inside and outside the realm of the "professional educator."

A wide divergence of opinion surrounded many of the alleged advantages and disadvantages. Most of the assets arising from the technical aspects of the medium appeared to be valid. In general the suggested disadvantages seemed to be valid, but, again, the relative importance of these liabilities could be debated.

Most of the arguments suggested for or against television in education would affect all school levels in essentially the same way. For the elementary school there were potential contributions toward improved motivational procedures, enriched instructional offerings, and better use of specialized teaching personnel. Limitations with the strongest implications at the elementary school level were those involving reduced personal contact between student and teacher and the restricted methodology suitable for teaching by television.

As a result these conclusions were drawn:

1. An urgent need existed for a clearer understanding of what aspects of educational television were advantages and what features of the medium were disadvantages. Much more evidence is required to prove or disprove many of the allegations in support of or critical of the medium's use in education.
2. There was a need for inquiry into the efficacy of many traditional beliefs and procedures being used in education. Educational television should not eliminate everything that was conventional, but it should contribute to the process of re-appraisal.
3. Again, the highly generalized nature of the literature on this topic weakened the value of the references for contributing toward a clear, definite inventory of advantages and disadvantages.
4. Advantages and disadvantages were often relevant to particular school levels, although there was little indication of careful appraisal of the various claims by elementary school educators. Educational broadcasters will be preoccupied with considerations surrounding the medium itself--concern over its suitability for certain grade levels must come from individuals involved in education at those specific grade levels.

Description of Projects (Non-Experimental)

The emphasis in this section of the study was concentrated upon practical applications of the medium for instructional purposes. Actual projects involving the elementary school were selected to indicate the ways in which television was being utilized by educators. A sampling of projects was taken from the United States and Canada. In addition, some attention was devoted to the experience in Great Britain.

The numerous American examples showed a tendency to apply television as the basic means of instruction for certain courses and parts of courses. Great scope was apparent in projects ranging from single school to multi-state forms of organization. Also evident in the United States was the use of television for nearly every subject area at all school levels.

Canadian experience was examined briefly at the national, provincial, and local levels. Use of television in this country was not nearly as wide-spread as American usage. It was apparent that the purpose for most educational television in Canada was enrichment rather than direct teaching.

In the section on Great Britain, no actual projects were described, but a brief look was taken at the total educational television situation. The use of the medium

was clearly for enrichment with no published evidence of any direct teaching applications. Early utilization of the medium was almost exclusively at the secondary school level, but later efforts involved the elementary school.

A number of implications were evident for both instructional and administrative areas of concern. All subject areas had been tried, but the medium appeared to be more valuable for certain fields such as science, music, and art. Use of television resulted in expanded curricular offerings in areas with small enrollments and/or a lack of qualified teachers. Expansion of learning experiences to include sources beyond the walls of the classroom was readily apparent. Administrative considerations involved clarifying the purposes for which television was to be used, creating situations which would encourage proper initiation and control of educational television projects, planning and coordinating all facets of a project, deciding upon the extent to which the medium will be a part of the total instructional program, deploying personnel, working with special groups outside the particular school system, and conducting suitable evaluation activities.

From these data the following conclusions were drawn:

1. The actual project descriptions illustrated many

apparently effective uses for television in both instructional and administrative areas. Better reporting of actual applications of the medium would contribute much more to effective utilization of television by other educators.

2. There was no lack in the quantity of project descriptions, but the quality of these reports left much to be desired. More information on both the theoretical and practical considerations in the various projects would clarify the suitability of the medium for specific situations and assist those who turn to the professional literature for guidance.
3. It is impossible to categorize television as a medium primarily suited for either direct teaching or enrichment activity. Once more the focus for usage must be determined by the requirements of the particular situation.

Description of Projects (Experimental)

The topic of research was considered in two chapters. Initial attention was devoted to describing a sampling of research projects. Again the investigations were selected from those conducted at the elementary school level. This approach was expected to reveal something of the general nature of experimentation in educational television. The

emphasis at this point was restricted to description.

Recent projects, employing a more rigorous research design, revealed commonly investigations into the effectiveness of television teaching. Some attempts were also made to ascertain the medium's effectiveness with different ability levels, make inter-media comparisons, present research summaries, determine the value of specific facets of the instructional process, assess reactions toward the medium, study the possibilities of wider distribution of materials, compare the economies of television and non-television situations, and find out teacher-student attitude-change toward subjects taught by television.

Varied implications for both administration and instruction arose from the project descriptions. Continuing efforts must be made to maximize student achievement through more effective use of new teaching techniques. More information was required from the area of the learner and the process of learning. All teaching methodology must be assessed objectively and revised where modification is necessary. Administrative implications included using television only in areas where it was suitable, encouraging examination of research on an organized, systematic basis, handling personnel in such a manner that needless opposition does not arise, seeking methods for greater distri-

bution of educational television resources, and examining all organizational areas affected by the use of television.

It appeared that the following conclusions could be drawn:

1. There was a very large quantity of experimental undertakings in the field of educational television. However, much of this material was scattered throughout several sources and any attempt to obtain a relatively current picture of the research would necessitate tremendous effort. Continuing reports were available in the Audio-Visual Communication Review, and the Research Fact Sheets of the National Association of Educational Broadcasters Journal, but no attempt was made to conduct an annual summary of the more relevant investigations. Wide circulation of such a summary in one or two general educational periodicals would be an invaluable service.
2. The scope and size of many investigations was impressive, but there was an apparent need for more probing into specific aspects of the instructional process and the role television could play in this process. Too many studies were concerned only with comparing the effectiveness of television teaching and conventional instruction. More research into the nature of television is required.

3. Many experimental reports were weakened by a lack of significant details. The acceptance of a standardized format for research reports could contribute toward elimination of this problem.

Research in Educational Television

Consideration of the total field of research in educational television involved summarizing general research reviews, examining some of the research evaluations, and indicating further research needs.

Several research reviews or inventories were available in the professional literature. Although a large number of specific factors were included in the general research inventories, the major findings showed that students could learn efficiently from instructional television, elementary school students felt they learned more from television than secondary school students, and most teachers who worked with television tended to like it, particularly those at the elementary school level.

Evaluation of the total field of educational television research was not generally favorable. Major criticisms were directed toward inadequate research designs. Often there was a lack of a clear conception of what objectives were being assessed. The nature of the measuring instrument was a frequently-mentioned inadequacy. Other feature of the

research design which were criticized were the influence of the novelty effect, comparison of televised instruction with some of the poorer features of conventional instruction, absence of sound planning, inadequate control of experimental conditions, and a dearth of careful replication.

The major problem of a lack of statistically significant findings was noted and several explanations for this factor were offered. Several other problem areas for research in this field were suggested: the operation of various biases, the gap between inquiry and action, the lack of financial support, personnel and facilities, opportunity and time for research activity, and the existence of an organization for research service.

Suggestions for further research touched a number of different aspects of the field of educational television. Much more information was required about the nature of the learning process and the potential of television as a means of improving this process. The various outcomes possible from educational activity should be assessed--television's contribution toward achievement of new and old outcomes would have to be weighed. Television's nature in terms of assisting learning and affecting the learner were areas lacking in sound experimental evidence. A broader scope for the utilization of television in education could be a

rich area for more research involving different applications of the medium. Other considerations involved the development of more competent research personnel in the field of educational broadcasting, the need for greater direction and co-ordination, and the requirement for more publication about and circulation of research activities and findings.

The foregoing discussion contained many instructional implications: determining new types of learning, developing new instruments for the assessment of learning, applying televised instruction only in content areas which would not be better served by conventional procedures, and devoting more attention to the influence of educational technology on the "whole child." Implications for administration were found in establishing effective testing programs, careful planning, direction, and control of research activity, identifying clear and attainable goals for instructional programs, and attempting to make the best possible use of television in the light of the available evidence on the medium, the process of learning, and the reaction of students and teachers towards the medium.

This section suggested these conclusions:

1. Although research findings commonly have general applicability in a field as broad as educational television, a trend toward analyzing research in terms of specific

school levels was becoming evident in some of the more recent summaries. The area of research is creating such a vast amount of information that this type of approach appears necessary.

2. Another obvious trend was the desire for a general upgrading of research in educational television. Research in this field has suffered from a lack of rigorous investigation. Elimination of this weakness can only come from a massive effort toward better experimentation.
3. All phases of all projects must be subjected to a carefully pre-planned program of continuous quality control. A good part of the low quality of research in the field can probably be attributed to a sudden awareness of the need for evaluation and hurried provision for this activity at the end of a project as well as a degree of vagueness in definitions of ends and means in education generally.
4. Warnings about poor research have been sounded before with limited success. The field of educational television cannot fail to heed the current warnings and follow-through with appropriate action.

Reactions Toward Educational Television

Determination of reactions toward the medium was

limited to those opinions held by students and teachers. A lack of material dealing specifically with this topic was evident in the professional literature. It was often difficult to isolate reactions toward the medium, per se, from other considerations dealt with in previous sections of this study, but such a distinction was made to focus attention on the prime factor of student-teacher attitudes toward televised instruction.

This section on attitudes was one of the few areas in the study which revealed distinct differences among the various school levels. Elementary school teachers tended to display more favorable attitudes toward television than those at higher levels. Teachers seemed to prefer using the medium in subject areas enhanced by demonstrations. Participation in educational television activities produced more favorable teacher-attitudes. Other information gained from teachers included the belief that proper use of television could assist teaching efforts, the medium would not replace teachers, and television teaching would require more from teachers in terms of their qualifications and methods of presentation.

Student reactions revealed more favorable attitudes on the part of elementary school children. Most pupils involved in educational television projects felt they

could learn from television and they enjoyed a certain amount of televised instruction as part of their regular school program.

Considerations raised through studies of student opinion tended to present a number of instructional implications: there was an intrinsic interest in the medium among younger children, television might create higher pupil involvement in the process of learning, and the medium could be useful in developing certain learning skills such as observing and listening.

Important implications for administration could be found in the favorable attitudes generally evidenced among elementary teachers, the favorable experiences associated with the use of television in subject areas suited to the medium, the positive influence of participation upon attitudes, the assistance provided by television in special subject fields, and the belief among teachers that television work would place greater demands upon the abilities of the participating personnel.

The conclusions resulting from these data were:

1. Much of the reported experimental and non-experimental activity in educational television gave little indication of the feelings of students and teachers. It has been suggested that many studies reporting student-

teacher reactions are available, but the lack of information in the professional literature is a serious omission.

2. Many factors extraneous to televised instruction being used itself, such as location of seats in the room and number of sets, exerted an influence upon the ideas of teachers and students. These non-television elements must be given due consideration in any examination of reactions toward the medium.
3. This dimension of attitude toward the medium evidenced the most notable difference among school levels. In few areas of the professional literature was there any concern over variations among elementary, secondary, and post-secondary school situations, but the treatment of studies of reactions toward television was a significant exception.
4. Perhaps the lack of published reactions toward televised instruction accounted for part of the alleged "opposition" to television within the teaching profession. Many people obtain their information about educational happenings in various parts of the country from the periodical literature--the content of books and periodicals could exert considerable influence on the nature of the thinking of many professional educators.

II. CONCLUDING STATEMENT

The topic of suggestions for further research has already been discussed in considerable detail in Chapter VIII. Future investigations into educational television could follow any number of clearly-defined guidelines. An apparent requirement exists in the need for assurance that research will, in fact, proceed in worthwhile directions. Allocation of responsibility for this function becomes an onerous task. Suggestions that no single, organized body would be capable of keeping pace with the vast range of educational television activity are inadequate. It is the very nature of this vast range which necessitates a co-ordinating centre to avoid the past experiences of ineffective, poorly-conducted research efforts.

There is an urgent need for greater awareness of and concern with the direction in which educational television is heading. More must be known about the medium and the part it will occupy in the process of education. This means extending current concepts of the learner and the learning process. Scientific investigation into these areas must be supported by widespread awareness and understanding of the results of experimentation.

Significantly the foregoing dilemma is not peculiar to the use of television in education--educational broad-

casters and elementary educators are being charged with a weakness that probably applies equally to other comparable situations involving educational change and innovation. Much that accounts for this concern is found in the lack of completely satisfactory understandings of learning, the nature of the learner, and even teaching methodology.

The question arises as to what extent an innovation must be required to prove its worth. Should there not be an assessment of the "status quo" in terms of the same criteria imposed upon the proposed innovation? It is debateable whether the onus for proof rests with the old or the new--perhaps it is not an "either-or" situation. While the development of educational television should not be retarded because certain vital questions remain unanswered, it is, nonetheless, important to recognize the extent of knowledge or lack of knowledge regarding these issues.

It is important to reiterate that responsibility for carrying out the above functions does not rest solely with the educational broadcasters. Educators at all levels, including the elementary school, must become actively involved because the lesson of actual experience teaches that educational television is used best in specific instructional situations. Television cannot be isolated from general educational concerns--continuing study of the professional literature of both the medium and the field of education

represents a vital first step toward the ultimate goal of optimum utilization of television to improve learning.

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